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CERTAIN PHASES OF NEPHROSCLEROSIS IN CHILDHOOD*

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In spite of the great amount of work expended on clinical analyses, studies of pathologic changes, experimental investigations and discussions of nephritis, there remains much that is obscure in the etiology, many symptoms are unexplained and, unfortunately, much too little is known of prevention and treatment. The clinician daily faces problems which make him acutely aware of the present insufficiency of knowledge. That an organization such as the Section on Diseases of Children of the American Medical Association fosters a symposium on the subject is evidence that physicians are actively searching for the solution of their practical difficulties. This can come about only through further study.

TERMINOLOGY

Discussion of the terminology of nephritis has occasioned much use of printers' ink. The close student of any problem often manifests a tendency to multiply terms and an inclination to invent or modify classifications. Most clinicians, on the other hand, demand as simple a classification as possible and the employment of terms as descriptive as can be coined. Classifications may be based on conceptions of etiology, on pathologic changes, on symptomatology or on combinations of these. The first essential is an understanding of the terms by the person employing them. There is little justification in our present state of knowledge of nephritis for the use of complicated terminology. It can be assumed that in chronic nephritis the tissue of the kidney is quite generally involved—that is, a pure glomerular, a pure tubular, or a pure interstitial nephritis does not occur, although any one of several parts of kidney structure may be primarily and preponderantly involved. If there is an exception to this, the closest approach to it is the condition known as lipoid nephrosis. Particular groups of symptoms and effects come about in acute nephritis and even in chronic nephritis which depend on whether the glomeruli or the tubules are more involved. There results, too, a syndrome associated with chronic interstitial nephritis or nephrosclerosis which will be described later. In addition to this, there is perhaps one other type of chronic kidney disease dependent on suppurative processes in the urinary tract. One questions the necessity for a multiplicity of terms such as chronic productive nephritis, chronic parenchymatous nephritis, chronic desquamative nephritis, chronic glomerular nephritis, chronic tubular nephritis, nephrosis, lipoid nephrosis, renal arteriosclerosis, renal arteriolosclerosis, granular kidney, atrophic kidney, chronic interstitial nephritis and nephrosclerosis. The present paper will deal with chronic interstitial nephritis, or nephrosclerosis—the latter term better expressing the generalized involvement of kidney structure.

ETIOLOGY

The causation of nephrosclerosis is far from a simple subject. Too little accurate clinical or experimental data are available, and what exists cannot be presented here. In the attempt to study etiology, one must be influenced by personal observations but should also depend largely on an analysis of what the literature contains of the work of careful students of the condition. From such sources given in detail elsewhere [1] certain conclusions, especially as related to chronic kidney disease in childhood, may be quoted:

> When the literature is studied many references are found which stress hereditary influence. . . . There can be little doubt of a familial predisposition to chronic nephritis.
>
> Intra-uterine nephritis or nephritis may occur in very early life. It is possible that in some instances the end-results of this may become manifest in later childhood. That is to say, the damage is not sufficient to cause death at once, and enough functioning tissue remains to carry on until such time as greater demands are made on the kidney by such factors as increased body growth or the increased functional demand for excretion of waste products the end-result of tissue destruction by bacterial toxins which occurs during infections, or the elimination of endogenous and exogenous toxins and poisons other than bacterial which add their load to kidney function.
>
> It has taken the advent of the Wassermann reaction to prove that syphilis is an etiologic factor in few if any cases of nephrosclerosis and renal rickets. From a pathologic point of view, congenital syphilis can attack the kidney and cause damage, but it must be seldom that this injury results in nephrosclerosis.
>
> Acute bacterial infections, especially of a streptococcic nature, may in some cases injure the kidney and cause chronic as well as acute nephritis. Influencing this may be an hereditary predisposition to kidney disease. There remain other cases in which chronic kidney disease may be due to other than bacterial causes. Among the most interesting of these is the group of cases occurring in early childhood or infancy, of congenital anomalies of the kidneys or ureters, cystic kidney, obstruction, suppuration and hydronephrosis.
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> Lead, alcohol, gout and other exogenous and endogenous poisons and toxins are seldom etiologic factors in nephrosclerosis in childhood.

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Many cases of nephrosclerosis have an insidious onset which cannot be related clinically to any known cause.

It is most important to emphasize that there is an hereditary predisposition to nephritis because it is in the presence of this that many other causes act after the manner of trigger mechanisms. It is on some such basis that there must be explained the effect of certain apparent causes of nephritis which act in some persons but have no effect in others.

While space allows little further discussion of the foregoing conclusions on etiology, certain phases of the relation of infection to chronic nephritis must be mentioned. If there is a causal connection between the so-called focal infection and nephritis in adult life, it is certainly seldom obvious in childhood. While children may suffer from infection which might be described as focal in character, many of the reported cases of chronic nephritis have occurred too early in life for such a cause to be operative. Furthermore, it seems difficult to bring out from the case reports or from personal observation that recognizable focal infection is present in such cases with any frequency or that it is more common in children with chronic nephritis than in others who have no symptoms of kidney disease. It would seem that such a type of infection if it acts does so in the presence of a constitutional hereditary weakness or tissue predisposition.

One other qualifying statement must be made. In the presence of chronic nephritis, one may search for evidences of infection but history of a past infection is in itself no proof that chronic nephritis is a consequence of it. An example is the acute nephritis following scarlet fever which, it is well known, often results in complete cure. At least in many cases no discoverable evidence of any residual kidney damage remains even when such cases are followed for periods of months or years. The same is true of acute glomerular (hemorrhagic) nephritis of a similar type, no matter what its apparent cause. In retrospect, however, a history of scarlet fever or some other infection may assume undue significance. One cannot always be sure in a given case that the acute infection did not merely take place in a patient who was already the subject of a chronic nephritis.

If high protein diets have an influence in producing chronic nephritis, this cause again does not appear to be clinically apparent in childhood. Then, too, in practically all cases one may dismiss the degenerative type of nephritis associated with arterial disease—the so-called cardiorenal syndrome.

SYMPTOMS

The onset and beginning of the course of nephrosclerosis may be insidious. The diagnosis may not be made at first because of failure of the development of characteristic symptoms or more particularly because of incomplete study and examination of the patient. Persistent anemia is not unusual and may be the first symptom to call attention to a chronic underlying factor. Differential diagnosis need not be dilated on except to mention that among the faulty diagnoses are diabetes insipidus made because of polydipsia and polyuria, and brain tumor made because of headache and vomiting. It has already been hinted that cystic disease of the kidney and chronic obstruction and infection of the urinary tract may be responsible for the same symptoms as nephrosclerosis and for the same reasons; namely, destruction of kidney structure and functional insufficiency.

The symptoms and examination of children with nephrosclerosis may be summarized as follows:

There is no difference in sex incidence; the average age at the onset of symptoms is about 7 years, but many patients have symptoms in early infancy; marked retardation of growth is present in almost all patients; mentality may be normal or above the average, but in some patients it is less than the average for the age; sexual development is frequently retarded in the patients past the usual age of puberty; polyuria and polydipsia are frequent and early symptoms; anorexia may be a marked symptom; headache and vomiting occur frequently; convulsions, uremic in nature, are sometimes early and often terminal symptoms; tetany is an infrequent symptom; edema, usually slight, is not a very frequent symptom; hemorrhagic manifestations may be present; albuminuric retinitis is frequent; anemia is very constant; pigmentation of the skin is not uncommon; circulatory disturbance is surprisingly infrequent; cardiac enlargement is common; sclerosis of the superficial blood vessels may be present; high blood pressure is frequently found when examination is made for it; when the urine is examined there is always found low specific gravity and albumin and, less frequently, casts and white and red blood cells; when kidney function tests are made marked renal insufficiency is usually discovered; genu valgum is a frequent manifestation in those patients who have bone changes.

Of peculiar interest is the occurrence of the bone changes that are manifest in some of the children with nephrosclerosis or chronic kidney insufficiency from some other cause. About seventy-eight cases of so-called renal rickets have been reported in sufficient detail for analysis. Clinically the bone changes resemble those of the usual infantile rickets. There may be enlargement of the epiphyses of the wrist and the costochondral junction, pigeon-shaped chest, bossing of the frontal and parietal bones and deformities of the extremities. The sudden or gradual onset of marked genu valgum is an especially pronounced symptom. By roentgenologic and histologic study the bone changes have been found somewhat different from those of infantile rickets in that the shafts of the long bones and the flat bones have greater translucence and a more spongy appearance. It is because of this as well as the obvious difference in etiology that some authors have objected to the term rickets as applied to the bone changes of chronic kidney disease. Linked, perhaps, to the underlying fault is the dwarfism, or infantilism, the latter term connoting the lack of sexual development in some cases.

THE DISTURBANCES OF GROWTH AND NUTRITION

Many of the symptoms and signs of nephrosclerosis are the same in childhood as in adult life. In all chronic diseases of early life, however, the final problem of greatest importance is the effect on growth and on future physical well being. In this light the problems of chronic nephritis in the young child have a significance somewhat different from those to be solved for the adult nephritic patient. The demands of a young body for growth are not similar either in nature or in magnitude to the requirements of an adult body for maintenance. Efforts for the solution of the problems of the young nephritic patient must be directed toward satisfying these demands for growth and maintenance in spite of the handicap of disease processes which inhibit

the proper assimilation of food substances. There is need for a better explanation of the manner in which various factors of the disease not only contribute to a general state of ill health but also retard growth and development. This explanation may be sought for in the disturbances of the digestive system, in faulty assimilation of chemical substances in the tissues, or in an increased catabolism of formed tissue substances.

It is apparent that the metabolic processes of growth may be profoundly affected by the agents causing the nephritis as well as by the functional chemical changes consequent on the disease. Agents that cause nephrosclerosis may affect other organs as well as the kidneys, producing in them a sclerosis and inhibiting their expected development. With progression of the nephrosclerosis the diminution of the excretory power of the kidneys produces in the blood and tissues a piling up of waste substances, and these may in turn increasingly interfere with the chemical reactions necessary for the normal activity and growth of the body.

The state of undernutrition of the nephritic child is undoubtedly in large measure dependent on a partial starvation due to the anorexia which is nearly always present to a varying degree. This anorexia may be conditioned to some extent by the tendency to nausea and vomiting provoked by irritation of the central nervous system. Peters, Wakeman and Lee [2] found that in the vomitus of nephritic patients the chloride—both "free" and "combined" acid—was low, and it is therefore possible that a tendency to moderate hypochlorhydria may also contribute to the lack of appetite.

In nephritis with nitrogen retention there is a definite disturbance of carbohydrate metabolism. The fasting level of the reducing substances of the blood is slightly elevated and it has been shown by fermentation tests that the increased reducing power of the blood is practically all due to dextrose.[3] The blood sugar curves obtained after the ingestion of dextrose approach the type seen in mild diabetes;[3] but, as Linder, Hiller and Van Slyke showed by studies of the respiratory exchange during such tests that there is no fault in the ability of nephritic patients to burn sugar, it may be concluded that the prolonged hyperglycemia after the ingestion of dextrose is due to a retardation of the conversion of dextrose to glycogen. Even in normal subjects acid substances introduced into the body tend to cause glycogenolysis and hyperglycemia,[4] so it is easy to understand why there is an interference with glycogenic function in the nephritic patient who has a constant tendency to slight acidosis. It is a common clinical experience that the diabetic patient developing renal insufficiency with nitrogen retention becomes more refractory to the action of insulin. Also, in certain types of experimental nephritis and in experimental bacterial intoxications which cause nephritis in animals, it has been shown [5] that the power of insulin to reduce the blood sugar is markedly inhibited. The faulty synthesis of glycogen may constitute an important factor in the poor development and growth of the young nephritic patient, since glycogen is such an important constituent of muscle and so necessary for the normal function of muscle and other tissues.

Rather little is definitely known concerning the real efficiency of the total protein metabolism in nephritis in spite of the fact that clinicians are accustomed to attach great significance to such superficially demonstrable signs of disturbance of it as the elevated nonprotein nitrogen concentration in the blood, the changes in blood proteins, the albuminuria, and the variations in urea and ammonia excretion in the urine. Perhaps too much attention has been paid to the diminished ability of the kidneys to excrete waste nitrogenous substances, since in the past there has been a general practice of markedly limiting the protein intake in the diet. Peters and Van Slyke [6] state: "It is the belief of the authors that we have as yet no criterion for the renal state that requires protein restriction, and that the condition of the nephritic patients in general would be happier, the progress of the disease no more rapid, if their diets were regulated in accordance with the usual metabolic requirements of persons of their size, age and activity, with due regard to the state of their digestive organs and their general condition, and without regard to the logical but clinically unproved assumption that protein restriction should accompany retarded urea excreting ability." This statement seems particularly applicable to the chronic nephritis encountered in the very young child in whom the demands for growth will not and cannot be denied without tremendously handicapping all the physiologic processes of the body.

It is difficult to discover whether there is a greater catabolism than normal going on much of the time in the tissues of the nephritic patient, but there is increased catabolism at least during the frequent exacerbations of acute symptoms of the disease. Such exacerbations are seen especially after many mild infections and illnesses which would affect the normal child very little. Such factors as fever and bacterial intoxications accompanying even mild infections increase the metabolic rate, and with a diminished food intake due to anorexia and vomiting there is increased tissue destruction and protein wastage. This increase in tissue destruction not only contributes to a loss of body weight, which is difficult for the patient to regain in more normal periods, but it places on the kidneys additional burdens of excretion of nitrogenous and other waste products. As the waste metabolic products accumulate in the blood, they in turn contribute to increasing the tissue catabolism. One example of this has been cited; the effect of acidosis in increasing glycogenolysis. Acidosis also increases the splitting of certain organic phosphorus compounds of the blood and tissue cells [7] thus throwing more inorganic phosphoric acid into the circulation, to be added to the accumulating acids which the patient is obliged to dispose of. In this way there is set up a vicious cycle against which the patient adjusts with increasing difficulty as the disease progresses and when, with the years, the growing bulk of body tissue and the greater physical activities increase the waste products to be excreted by the kidneys.

The extreme effects of chronic nephritis on growth and development and nutrition are probably most in

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3. Linder, G. C.; Hiller, A., and Van Slyke, D. D.: Carbohydrate Metabolism in Nephritis, J. Clin. Investigation **1**: 247 (Feb.) 1925.

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evidence in the cases designated as "renal rickets" or "renal infantilism." It is likely that in cases of chronic nephritis with lesser impairment of renal function one has to deal with general physiologic disturbances which are at least of the same direction as those observed in "renal rickets" even though these changes are of less magnitude. A summary of some of the chemical changes in the blood and in calcium and phosphorus metabolism reported in the literature on this subject was included in the review of nephrosclerosis in childhood previously mentioned.[1] In that survey of the mineral metabolism studies reported by a number of workers, it was pointed out that in the cases of renal rickets, and also in cases of chronic nephritis without definite signs of faulty bone development, there was evidence of faulty absorption and storage of calcium and phosphorus in the body. Analysis of the available data from these studies gave rise to a view of the etiology of renal rickets which was summarized thus:

> In a type of nephritis characterized by a relative or absolute inability of the kidneys to excrete the waste endogenous phosphates from the body, there exists considerable evidence that such waste phosphates may be excreted through the intestinal mucosa instead of from the kidneys. It has been repeatedly demonstrated that an increased concentration of phosphates in the food—that is, in the intestinal contents—may interfere with the absorption of calcium, presumably through the formation of insoluble calcium phosphates. An hypothesis is offered that in renal rickets, such a shift of the excretion of endogenous phosphorus to the intestines occurs, and that the concentration of phosphorus in the intestine thus increased so blocks the absorption of calcium from the food that the child suffers a true calcium starvation.

Further studies of the total mineral metabolism in chronic nephritis are greatly needed to explain the disturbances which are responsible for the faulty skeletal development and poor growth which may accompany the disease.

SUMMARY

This paper deals primarily with nephrosclerosis in childhood. In studying the etiology of this condition it is found that there is a familial and an hereditary predisposition to it; that intra-uterine nephritis or nephritis in very early life may occur; that syphilis has little if any effect in causing chronic kidney disease in early life; that acute bacterial infections, especially of a streptococcic nature, may cause injury to the kidney resulting in chronic disease; that exogenous and endogenous poisons and toxins are seldom etiologic factors in nephrosclerosis in childhood; that focal infections seem to have little to do with chronic kidney disease in childhood; that high protein diets are not operative in producing nephritis in early life.

None of the evidence warrants too great protein restriction in children suffering from chronic nephritis, but the better treatment consists in planning the diets to meet the usual normal requirements as far as possible.

In the discussion of the symptomatology, special mention was made of the peculiar bone changes which occasionally occur and of the undernutrition and dwarfism which is a common accompaniment of chronic kidney disease in childhood.

We have attempted to point out certain directions in which further metabolic studies are needed in order to gain a better understanding of the marked disturbances of growth and skeletal development which accompany chronic nephritis in childhood.

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NEPHROSIS IN CHILDHOOD*

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In the arrangement of this program, nephrosis was included among the renal diseases. The term[1] was introduced by von Müller to designate histologic changes in the kidneys which manifested themselves in a primary degenerative process of the tubular epithelium in contradistinction to inflammatory changes in interstitial tissue and glomeruli. This is not the place to reiterate the various objections raised against the name and its significance. Some pediatricians prefer the designation "tubular nephritis." The changes in the kidneys are accompanied by a rather definite clinical picture. Typical cases of the disease do not seem to be common in the adult, a fact emphasized by Volhard at the symposium on renal diseases at the University of Minnesota in 1930. The condition seems to be less uncommon among children. Only unmixed cases concern us here, and there are a sufficient number of well authenticated cases, accompanied by reports of careful necropsy, to set them aside as examples of an entity.

The changes in the tubules vary in intensity and distribution; in pronounced cases that come to necropsy they are widespread. They vary from cloudy swelling to necrosis of the cells and may be severe enough to overcome even the regenerative powers of the tubular epithelium leading to secondary changes with formation of scar tissue. Among children such secondary lesions have been observed only to a very limited degree.[2] Of interest is a case which started in infancy, coming to necropsy after about seventeen years without secondary changes in the kidneys.[3]

Early in the consideration of this subject, no less an authority than Löhlein[4] objected to the conception of a primary degenerative lesion of the tubules, claiming that such a lesion is always initiated by a glomerular change, although in his rather well known case 25 he was unable to demonstrate any trace of such a glomerular lesion with the methods then at his disposal. The views of Löhlein were accepted by some pathologists and more recently studies in this field have been taken up again by Bell[5] and Bell and Clawson[6] with the Mallory-Heidenhain azan-carmine staining method. With this stain the capillary basement membrane is outlined sharply so that it is easy to distinguish between cells on the inside and on the outside of the capillaries. In pure lipoid nephrosis a varying increase in the number and size of the glomerular endothelial cells and uneven thickening of the basement membrane are described. Bell regards lipoid or genuine nephrosis as a form of glomerulonephritis in which the glomeruli are injured, but their capillaries are only partially obstructed, so

* From the Section on Pediatrics, the Mayo Clinic.
* Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

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that they continue to function, and tubular atrophy does not occur. Bell was kind enough to examine sections from one of my cases. The patient was a boy, aged 2½ years, who died during an attack of erysipelas. Nephrosis started insidiously and had lasted only one and a half months when the erysipelas began.

These changes are not intense and are not demonstrable in all glomeruli, although the tubular lesion is uniform and pronounced. Furthermore, it is not easy to decide whether there is definite increase in the number of endothelial cells. It has been stated that in the normal subject the endothelial cells make up about a tenth of the total number of glomerular cells, whereas Wilbur [7] has stated that their number is about a quarter to a sixth of the total. Moreover, it seems that more intense injuries of glomeruli may be found in nephritis, with much less injury of tubules.

The question, therefore, whether the glomerular changes in a case like this can adequately explain the widespread tubular disintegration seems difficult to answer. That some of the clinical manifestations are of extrarenal origin has been recognized generally. Certain authors have concluded that the renal changes are entirely secondary. Thus, alteration of the lipoid metabolism was given as the primary factor [8] or general metabolic disturbance with special reference to the thyroid gland. The views of Marriott and Clausen,[9] that nephrosis is to be considered a general systemic disease, has again been emphasized by Wolbach and Blackfan. It is stated that this condition represents an entity in childhood, and that the pathologic changes in the kidneys do not afford an explanation of the significant physiologic disturbances of the disease. These authors deplore the use of a name implying renal origin without offering a substitute. Until knowledge is further advanced, it may be well to adhere to a name designating definite histologic changes of an organ which, by the alterations of the morphology and chemical nature of its product, contributes something definite to the clinical picture.

Perhaps the most striking clinical feature of the disease is edema, which can reach extreme degrees. In this edema not only skin and muscles but various viscera can participate, and the serous cavities may contain much fluid, particularly the peritoneum. All these effusions are characterized by a low content of protein. The parts of the body which do not communicate with ingested water must get it from the blood. In the transportation and storage of water many factors enter into consideration, and in most instances probably several, in a hitherto bewildering array of combinations, the water exchange being intimately connected with distribution of electrolytes and colloids as well as perhaps with changes in the colloids. Aside from the forces governing the distribution of water in polyphasic colloidal systems of different concentrations, accepting these solutions as freely miscible, often membranes are interposed, and these membranes can be partially permeable to various constituents. Many of these factors have been well considered in a review by Loeb,[10] published in 1923. It remains to touch briefly on some more recent work. The barrier between blood and tissues is formed by the capillary walls. With the exception of those of liver and intestines they have been regarded as practically impermeable to proteins. This view has been challenged [11] and, if the challenge is valid, conceptions of edema based on this impermeability of capillaries to protein will have to undergo some modifications quantitatively if not qualitatively. Unpublished filtration experiments with the living mesentery seem to invite caution in this regard. The existence of a hormonal influence on the water balance can hardly be doubted, but this problem will not be considered here. The Gellhorns [12] showed an influence of inner secretory substances and toxic agents on the permeability of muscle membrane to sugar. Experiments on the permeability of living or surviving membranes, such as skin muscles of frogs, or the cornea and iris and the choroid plexus of rabbits,[13] indicate directed permeability in part possibly dependent on the life of such layered membranes to which body membranes may belong. Wertheimer found, for instance, that water from an isotonic solution of sodium chloride passed through the skin of frogs to an isotonic sodium citrate solution and away from an isotonic rhodanate solution. It passed through more readily to sugar solutions than to a sodium chloride solution of comparable concentration. In other words, examples of so-called anomalous osmosis seem to become numerous; that is, movement of water not in agreement with the accepted laws of osmosis.

Some of these results may perhaps be explained by the action of electrical forces. Such forces are at play, for instance, in the adsorption as well as in the so-called Donnan effect, the relative importance of which can hardly be evaluated in complicated systems.[14] Within recent years the electrostatic forces in the organism have received considerably more attention, and in these studies the behavior of dyes has assumed importance.[15] Keller,[16] on the basis of numerous studies in plants and animals, advanced the hypothesis that water may pass to regions or points of relatively greater electronegativity, that is, to the relative cathode. With dyes, such relative cathodal regions can be distinguished, indicating in this manner possible waterways. Some experiments [17] were conducted in order to see whether the intradermal layer of the skin of man could be distinguished by injecting dye in 0.5 per cent sodium chloride solution intradermally and noting the time of its disappearance. The dyes were selected from a list

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given by Keller as having been tested on certain organs of *Daphnia magna*. As is often the case, the first experiments were rather promising. The cathodal fluorescein (in watery solution this dye migrates to the anode) disappeared at about the same time as did the bleb, whereas the anodal neutral acriflavine remained discernible in the skin for about five days. On the other hand, cathodal dyes such as eosin and acid fuchsin, and anodal dyes such as basic fuchsin, neutral red and methylene blue did not fall into line. As is well known, other factors, particularly the degree of the dispersion under the conditions of the tests, enter into consideration. The cathodal alkaline blue remained more than three months, whereas the congo red, also cathodal, disappeared in about seventy-two hours. Both are coarsely dispersed. It is of interest that congo red, in some cases of edema, including edema of nephrosis, remains discernible at the place of injection a week or longer. It may well be that further investigations in this direction will give valuable information.

Within the last few years, advances made by physical chemists in diffusion and ultrafiltration have shown that much is still to be learned in rather simple systems.[18] The complexity of the forces governing the water exchange in the organism are being realized, and investigators are becoming more cautious with theories of edema. A satisfactory theory of edema must be able to explain the production, maintenance and release of edema, and no such theory exists today.

The diagnosis of edema in the pitting state offers no difficulty, but when this happens much fluid has accumulated already. Rather sudden increases in weight can arouse suspicion. The elastometer of Schade[19] can detect these so-called preedematous states, or it can be demonstrated by the very ingenious and valuable bleb test of McClure and Aldrich.[20] Often these tests run parallel, but measuring different phases of edema they need not do so. Various factors have to be considered in the bleb test also,[21] but it seems to be dependent largely on the avidity of the epidermal skin for water.

With the disappearance of edema, a high degree of emaciation may become evident.

The urine in nephrosis is reduced in amount, is of high specific gravity and often contains albumin in large amounts. Most of the urinary protein is often serum albumin, but the globulins may be preponderant.[22] It seems that the presence of hepatic protein has to be reckoned with, and perhaps also that of renal protein.[23] The urine is poor in chlorides. Casts of various descriptions are to be found, at times doubly refractile lipoids, and not infrequently a rather large number of leukocytes, although the urine is sterile. No satisfactory explanation exists for the presence of these leukocytes. Helmholz and I[24] found leukocytes in the urine of rabbits after intravenous injections of concentrated solutions of sugar. Erythrocytes in significant numbers are absent.

Congo red injected intravenously passes rapidly in the urine.[25]

Examination of the blood is valuable. The blood proteins are reduced in amount, with a reversal of the albumin-globulin ratio. The globulins, and particularly the fibrinogen, may be increased. This reduction of protein, particularly absolute reduction of the albumin fraction, has been brought into relation with the appearance of edema.[26] Epstein stated that the kidney becomes permeable to blood proteins and so depletes the blood of protein, particularly of serum albumin. The clinical picture of nephrosis results from this depletion, concomitant with alterations in exchange of lipoids. Thomas, Schlegel and Andrews stated that the permeability of the kidney for blood protein may be initiated by the entrance of liver protein into the circulation. Barker and Kirk, following Leiter,[27] remove the plasma from the blood of dogs, reinjecting the erythrocytes in Locke's solution. On frequent repetition of this procedure (so-called plasmaphaeresis[28]) the content of protein in the blood is diminished, particularly the content of albumin. Edema develops, and later albuminuria; granular casts and fat droplets appear in the urine, and in sections degeneration of the renal tubules is seen. Here there are two conflicting conceptions. In one instance the albuminuria, however induced, is the cause of the depletion of protein in the blood; in the other, the depletion of protein in the blood produces the albuminuria. Bennett, Dodds and Robertson[29] observed cases of edema in which there was similar reduction of blood proteins but no renal injury. That some relation exists between lowering of values for blood protein and edema seems rather certain, but it cannot explain edema alone, for such changes in blood chemistry may persist for some time after the disappearance of edema.[30]

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The next striking change in nephrosis is the increase of lipoids in the blood. Usually fat, fatty acids, lecithin and cholesterol run parallel, but not necessarily.[31] The lipemia may be of sufficient degree to be detected in examination of the eyegrounds. Most authors confine themselves to determination and discussion of values for cholesterol, which may be increased to more than five times normal. This increase has been brought prominently in causative relation to edema. The data on increase and decrease of edema with changes in excretion of cholesterol in the urine do not warrant any definite conclusions; neither can the cholesteremia explain the albuminuria.[32] Nonprotein nitrogen is not increased, but transitory rises seem to occur. The concentration of sugar is often at the lower limit of normal. The value for calcium is often rather low, probably in relation with the lowered content of protein.[33] The content of chloride may be relatively low or it may exceed the normal, and without constant accurate relation to either the edema or the urinary output.

The problem of blood volume and hydremia is too complicated for consideration here. More than moderate anemia can occur later in the disease. The edema fluid is relatively rich in chlorides and phosphates, it is more alkaline than the blood, and it has an appreciable buffer value for acids.[34] The calcium content is not low even if tetany has been reported.[35] It is clear, whereas the ascitic fluid is usually turbid; otherwise the edema fluid and the ascitic fluid are about equal in composition. These fluids deserve more intensive study.

The circulatory apparatus is mainly noteworthy for the tendency to low arterial blood pressure. Transitory moderate rises in blood pressure seem to be possible. Cardiac failure seems also to be possible, in part at least due to embarrassment of the heart by accumulation of fluid in the thorax and abdomen or to a break in the general circulation.

Usually the sensorium of children is free; indeed, a number of the patients have impressed us at the clinic as being unusually alert. It seems that manifestations attributable to edema of the brain, so-called pseudouremia, can occur; such manifestations are headache, vomiting, convulsions and stupor. But such attacks are not a common feature. The disease may last from several months to several years. In one of our cases the disease lasted, off and on, for about seven years, the patient now being in good condition. Even after seven years occasionally there was some albuminuria, but the changes in the blood had disappeared; the volume of the urine was normal, and it was usually free from albumin. The patient excreted extra water as well as salt promptly, and the bleb test and the elastometer test returned to normal. These are the rigid requirements for determining whether or not cure has taken place.

The mortality is rather high. For instance, ten of twenty-one patients of Wolbach and Blackfan died. Of the twenty-six patients of Davison and Salinger, six died; of the remaining twenty, eight still had the disease in active form at the time of the report; six had recovered, and five others had been well for more than seven years.

A few words about the etiology must suffice. In many cases the onset is insidious, and even a carefully taken history cannot establish any connection with initial infection, although this does not preclude such infection. A number of authors give infections a prominent place among the causes, particularly infections of the upper part of the respiratory tract. With regard to infections of the nasal sinuses, my experience is rather more like that of Davison and Salinger, and Wolbach and Blackfan, in whose series such infections did not seem to play a prominent part. This question of the part played by infection needs further study. It certainly cannot be dismissed lightly even if it cannot always be traced. In animals renal lesions similar to those seen in nephrosis can be produced by various poisons, particularly uranium and mercuric chloride; the latter also produces profound changes in the convoluted tubule in man. Further consideration of the etiology would lead too far into the field of speculation.

In a brief review of the course of the disease, it is very important to keep in mind the possibility of spontaneous fluctuations with their striking variation of edema and of fluid output. As in other diseases, one examination may give an erroneous impression, just as one exposure on a cinema reel would be insufficient to give the desired sequence. The greatest danger to such patients is intercurrent infection. Prominent among these infections are erysipelas and peritonitis. The latter is mostly of pneumococcic or streptococcic origin; in fact, these organisms have been isolated from the blood.[36] Any infection is to be viewed with alarm; for instance, infection of the upper and the lower portions of the respiratory tract, or of the skin. Such infections are not always fatal.[37] Indeed, sometimes they may initiate striking improvement.[38] Neither is it necessary to hesitate with essential surgical intervention. For instance, good results were observed following necessary appendectomy in two cases, in one of which stubborn edema was influenced beneficially by seeping, and perhaps by the operation. Fleischer and Loeb[39] have shown experimentally that operations, even outside of the peritoneal cavity, can influence absorption of fluid from the peritoneal cavity. Treatment aims at reduction of accumulations of fluid in the skin and elsewhere; not only does this seem to benefit the patient generally, but it may possibly diminish the danger of infection. First of all, since it has been shown accurately in some cases that administration of sodium chloride increases the edema, it is well to avoid its addition in food. Not only sodium chloride but also other sodium salts can induce increase of edema. Others have seen, and so have I seen, beneficial results from a diet

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39. Fleischer, M. S., and Loeb, Leo: Studies in Edema: VII. The Influence of Nephrectomy and Other Surgical Operations and of the Lesions Produced by Uranium Nitrate upon Absorption from the Peritoneal Cavity, J. Exper. Med. **12**: 487-509 (July 25) 1910.

high in protein; that is, from 2 to 3 Gm. of protein for each kilogram each day.[40] The introduction of this dietary method is due to Epstein.

Restriction of intake of fluid also seems desirable, although this need not go so far as to cause undue distress. Given at the proper moment, increase of intake of fluid may be followed by output of a greater quantity of fluid than that taken in. It is not always easy to induce diuresis in these cases, and sometimes it could not be induced by any means employed. However, generally I have had good results from several measures, such as administration of ammonium nitrate followed by injections of mersalyl; oral administration of urea, or of large doses of thyroid extract also have given good results.[41] Administration of magnesium sulphate gave good results at times also. Parathyroid extract and lately calcium gluconate have been recommended.[42]

I have had cases that were refractory to urea, and it seemed that, when this happened, there was no laxative effect on the bowels. Similarly, when the dose of thyroid extract that was given did not influence the intestinal movements, it had no diuretic effect. My experience is far too limited, however, to permit any generalization.

In cases in which intense edema resists treatment it is permissible to remove some of the fluid by opening the skin under proper precautions. Perhaps the best method is the insertion of tubes, as has been recommended for cardiac edema by Bland and White.[43] Sometimes tapping of the abdomen or the thorax can hardly be avoided and should not be delayed too long.

Until all data are obtained I usually keep the children in bed. They receive a so-called basal nephritic diet; that is, a diet poor in salt and protein, and in which the fluid portion is restricted. If the edema is not excessive and not progressive, rest in bed does not seem necessary. However, it must be kept in mind that, as the patients have freer communication with other persons, the chances for infection may increase. In some cases, some muscular activity seemed to be of benefit.

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Successions of Hypotheses.—A discipline like medicine may be regarded therefore as episodic, episode being linked to episode by no conceivable continuity of principle. Sharp breaks in the continuity of the content of interest are disclosed, so that it becomes (wherever this particular phase of the matter arises) impossible to speak of continuity either in subject matter or in concepts. The problem, viewed from this angle, is not in medicine to invent, forcibly, a concatenated thread along which these episodes are strung and which gives the appearance of consistency, in a historical sense, to varied phenomena; it seems more profitable to find whether failing this, if failing it be, is peculiar to the study of disease, whether in other scientific disciplines there may not likewise be similar discontinuities, and whether this appearance is not common to them all. In the sense that there have been in all of them successions of hypotheses, cultivated for a time fruitfully and then discarded for others more profitable, the general contention seems to be justified.—Cohn, A. E.: Medicine, Science and Art, Chicago, University of Chicago Press, 1931.

ACUTE GLOMERULAR NEPHRITIS IN CHILDREN

TREATMENT OF THE CEREBRAL MANIFESTATIONS *

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Acute glomerular nephritis, the form of nephritis encountered most frequently in childhood, is preceded usually by an acute illness commonly associated with the hemolytic streptococcus.[1] Following recovery from the acute infection, a period of from several days to two or three weeks often elapses before the onset of the renal disturbance. The child may be up and about and even return to school, when puffiness of the eyes, especially in the morning, directs attention to the condition, or hematuria may be the first abnormality noted. In many cases a certain amount of pallor and the continued presence of blood in the urine are the presenting signs, which may persist for a period varying from four to six weeks, or even longer. The prognosis in this form of nephritis is good as regards life and freedom from permanent sequelae, in the majority of instances.

However, there may develop, in children suffering from acute glomerular nephritis, a more alarming picture characterized by vomiting, headache, visual disturbances, frequently a slowing of the heart and respiratory rates, coma, convulsions and ultimately death. This syndrome is variously termed uremia, pseudo-uremia, or convulsive uremia.[2] As development of these symptoms is unrelated to the retention of nitrogenous end-products and, as will be shown later, is the result of a demonstrable fundamental cause, we believe the term uremia is a misleading one and prefer to speak of this symptom complex as the cerebral manifestation of acute glomerular nephritis.

The systolic and diastolic pressure of the blood is elevated to a greater or less degree in nearly all cases of acute glomerular nephritis,[3] but in patients with cerebral manifestations the blood pressure becomes elevated to a high degree. While in the majority of cases it seldom rises over 120 mm. of mercury, a rise above this level, particularly a steady increase, usually denotes the onset of cerebral symptoms. As the blood pressure rises above 140 mm. of mercury, the patient may vomit or complain of headache. A further rise indicates the danger of coma or convulsions. Of no less importance than the degree of elevation of the blood pressure is the rapidity of its rise.

Edema is present in patients with acute glomerular nephritis but not as the marked pitting edema of acute tubular nephritis or of certain forms of chronic nephritis. One gains the impression that the 4 or 5 pounds of edema fluid which these patients harbor is

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3. Berkley, H. K., and Lee, J. M.: Hypertension in Nephritis in Childhood with a Study of Ninety-Three Cases, Am. J. Dis. Child. **13**: 354 (April) 1917.

held in part as intracellular water rather than shifting intercellular fluid in the subcutaneous tissues or body cavities. This type of firm, presumably intracellular edema is found in various organs, among them the brain. In cases observed by us at necropsy the brains have weighed from 20 to 30 per cent more than normal for the ages of the patients, the convolutions have been

Fig. 1.—The brain of a child who succumbed to acute glomerular nephritis with cerebral manifestations. Evidence of cerebral edema is found in the medullary cone, appearing as a depression about the brain stem and corresponding in outline to the foramen magnum.

flattened, the surface of the brain has been firm and tense, and at the base there is invariably found the so-called medullary cone phase, produced when the medulla is forced into the foramen magnum as the result of rapid increase in brain volume (figs. 1 and 2).

The presence of cerebral edema has been amply confirmed at necropsy and seems unquestionably the cause of the development of the cerebral manifestations. Whatever the mechanism of the production of the rise in blood pressure, the parallelism of the rapidity of rise and severity of symptoms exists. Likewise, diminution in severity of symptoms is associated with a fall in blood pressure. The development of cerebral symptoms may be regarded as an incident in the course of the nephritis, apparently not dependent on the amount of blood in the urine or on the duration of the kidney symptoms, and independent of demonstrable retention of nitrogenous products.

Of the therapeutic agents that we have employed in the treatment of patients exhibiting cerebral manifestations with acute glomerular nephritis, magnesium sulphate has proved to be of most value. Magnesium sulphate given by mouth and, if necessary, by rectum usually suffices to control and relieve the cerebral symptoms if the administration of the salt is begun with the appearance of an elevated blood pressure during the stage of headache and vomiting and before the development of coma and convulsions. Very large doses of the drug are necessary. As much as from 1 to 2 ounces (from 30 to 60 cc.) of a 50 per cent solution by mouth or by rectum given every four hours is often required in order to secure the desired effect. As pointed out by Aldrich, magnesium sulphate in children with the hemorrhagic type of nephritis does not cause diarrhea even when massive doses are used. Rarely are there more than two or three stools daily until after the prophylactic result is obtained. The action appears to be one of general dehydration with resultant diminution of cerebral edema. Evidences of improvement are relief of cerebral symptoms and fall in blood pressure. The improvement is gradual and is seldom obtained without loss of body weight (fig. 3). The medication may be and should be continued until the blood pressure approaches a normal level.

In comatose patients or in those with convulsive twitchings, the action of magnesium sulphate administered by mouth and by rectum is not sufficiently rapid to prevent a fatal outcome. In 1923 it was shown that prompt relief of cerebral symptoms and rapid fall in blood pressure could be obtained by the injection, intravenously, of a 2 per cent solution of magnesium sulphate ($MgSO_4 7H_2O$), or a 1 per cent solution of the anhydrous salt.[4] This solution should be injected slowly, from 3 to 4 cc. a minute, by gravity into the vein of an arm, while the blood pressure is followed on the other arm. As the injection proceeds, the patient may perspire freely, vasomotor flushes run over the body, twitching ceases, and blood pressure gradually falls. The amount required has been, in our cases, about 10 cc. per kilogram of body weight. Should signs of respiratory depression develop from the too rapid administration of the salt, the injection should then be stopped for a few minutes. If the depression becomes alarming, it can be relieved promptly by parenteral injection of calcium chloride (from 2 to 5 per cent solution). This never has been necessary in our experience (fig. 4).

In 1928, the observation was made that a 25 per cent solution of magnesium sulphate, when injected intramuscularly, had almost as prompt an effect in relieving cerebral symptoms and in reducing blood pressure as did

Fig. 2.—Section of the brain of a child who succumbed to acute glomerular nephritis with cerebral manifestations. Cerebral edema is manifested by the flattening of the convolutions and the small compressed ventricles.

the intravenous injection of a 1 per cent solution of the anhydrous salt. Since then, we have employed this intramuscular injection as the method of choice when the presenting symptoms became so severe as to indicate emergency treatment. By way of illustration, with the blood pressure continuing to rise and with the develop-

4. Blackfan, K. D., and Mills, C. A.: The Effect of Two per Cent Magnesium Sulphate Solution on Cerebral Symptoms in Acute Nephritis, Tr. Am. Pediat. Soc. 35: 197, 1923.

ment of cerebral symptoms, despite large amounts of magnesium sulphate by mouth and by rectum, a 25 per cent solution of magnesium sulphate is given intramuscularly. The amount used is determined by the weight of the patient. It is seldom necessary to use more than 0.2 cc. per kilogram, although in exceptional instances we have used 0.4 cc. per kilogram of body

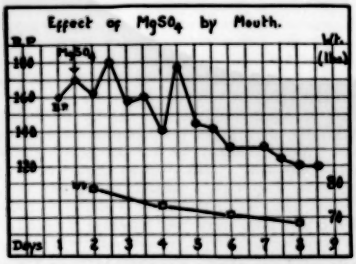

Fig. 3. (patient J. Q.).—The gradual response of cerebral manifestations of acute glomerular nephritis to the administration of magnesium sulphate in 50 per cent solution, by mouth and by rectum. The fall in blood pressure is associated with cessation of cerebral symptoms and is accompanied by loss of body weight.

weight. The effect as measured by fall in blood pressure and diminution in cerebral symptoms is obtained usually in from fifteen to thirty minutes and is analogous in all respects to the results derived from the intravenous injection. If results do not follow the first intramuscular injection, a second can be made with relative safety after a period of two or three hours. In some cases repetition of the intramuscular injection may be required several times before the blood pressure remains low and the cerebral symptoms disappear.

No difficulties have been encountered from the intramuscular injection of magnesium sulphate either as

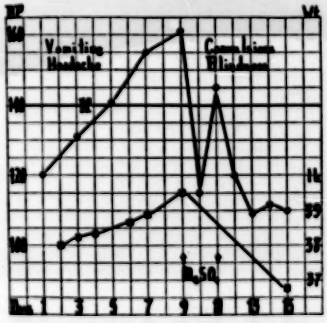

Fig. 4 (patient R. K.).—Rapid temporary relief of the cerebral manifestations of acute glomerular nephritis obtained through the administration of anhydrous magnesium sulphate (1 per cent solution) intravenously. Recurrence of alarming symptoms requires a repetition of the treatment, and permanent relief is obtained only by the continued use of the drug by mouth and by rectum.

regards alarming toxic symptoms of the drug or as regards local irritation or sloughs. Since the introduction of this mode of administration of the drug, patients who developed cerebral symptoms have responded to the intramuscular injections in conjunction with the use of the salt by mouth and by rectum, and in no case has recourse to intravenous injection been necessary (fig. 5).

The mechanism of the action of magnesium sulphate administered in the dosage we have used is not entirely clear. The anesthetic and depressant effect described by Meltzer [5] is obtained only with larger dosages; it seems certain that the narcotic action cannot account for the entire effect obtained in our cases. Lazard,[6] also, has found a dosage very similar to that which we use effective in the treatment of eclampsia. A primary consideration in the understanding of the mode of action of the magnesium sulphate must be the determination of the relationship of the increased intracranial pressure to the elevated blood pressure. Clinical observation records only the close association of the two factors yet suggests that the elevated blood pressure is caused by the increased intracranial pressure. On the contrary, an opposite relationship has been suggested in which constriction of the blood vessels is primary, producing both elevation of the blood pressure and cerebral edema. Conceivably, magnesium sulphate might, through acting

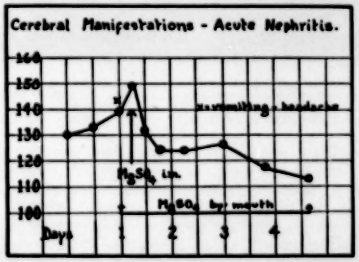

Fig. 5 (patient C. M.).—A gradual increase in blood pressure is associated with the appearance of cerebral symptoms. Magnesium sulphate in 25 per cent solution given intramuscularly causes a rapid fall in blood pressure and cessation of cerebral symptoms. The beneficial effect is sustained by the continued use of 50 per cent solution of the salt by mouth and by rectum.

as a capillary dilator, affect the blood pressure and thus the cerebral symptoms. The possibility of the effect being due to the osmotic action of hypertonic solutions seems remote in view of the hypotonic concentration used for intravenous injection, and the small amount of the salt required for effective action following intramuscular injection.

The lack of a satisfactory explanation of the action of magnesium sulphate does not, however, detract materially from its value as an effective therapeutic agent for use in the treatment of the cerebral manifestations of acute glomerular nephritis. It must be emphasized that, following the use of either the intravenous or the intramuscular injection of magnesium sulphate, it is necessary to continue large doses of the salt by mouth and by rectum. If the water retention and the cerebral edema are not reduced by the oral administration, the blood pressure rises again and

5. Meltzer, S. J.: Inhibitory Properties of Magnesium Sulphate and Their Therapeutic Application in Tetanus, J. A. M. A. **66**: 931 (March 28) 1916. Peck, C. H., and Meltzer, S. J.: Anesthesia in Human Beings by Intravenous Injection of Magnesium Sulphate, ibid. **67**: 1131 (Oct. 14) 1916.

6. Lazard, E. M.; Irwin, J. C., and Vrowink, John: Intravenous Magnesium Sulphate Treatment of Eclampsia, Am. J. Obst. & Gynec. **12**: 104 (July) 1926.

repetition of the intravenous or intramuscular injection may be required. These modes of administration are to be regarded as emergency measures only and should not take the place of the dehydrating effect of magnesium sulphate when administered by mouth or by rectum.

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SOURCE AND RÔLE OF URINARY PROTEIN IN NEPHRITIS *

WILLIAM A. THOMAS, M.D.
CHICAGO

It seems advisable from time to time to emphasize a point of view in nephritis, not because it is entirely new or because it is not well recognized in certain quarters, but because it is not generally known and accepted, and because, in spite of a decade of well controlled and confirmed work, the old view of the rôle of the kidneys in nephritis still dominates to a great extent the practice and theory of medicine.

The studies in this paper represent work on the source and nature of urinary proteins and lead to a possible explanation of the mechanism of proteinuria as a detoxifying process, as well as an evaluation of the manifestations of nephritis due to extrarenal factors.

It was formerly believed that in nephritis the kidneys, because of inflammatory or degenerative changes, became incapable of excreting water and the water soluble metabolites and of retaining within the circulation the proteins of the blood, and that the clinical aspects of nephritis were due to the action of these retained substances. Extensive experiments and observations, however, show that this cannot be the case. Pure renal insufficiency does not cause the picture of nephritis. Experimentally, animals with all or a large portion of kidney tissue removed live from five to ten days, dying without increased blood pressure, convulsions, coma, or any of the classic manifestations of uremia. Likewise in man, when, through error, the functioning kidney is removed or as the result of renal calculi, catheterization or other manipulations permanent anuria results, the patient dies with low blood pressure and progressive weakness, but not uremia.

This means that a better explanation for nephritis must be sought. A fair and representative statement of the present situation is that the kidneys stand in a secondary relationship to the tissues in nephritis. They excrete water and metabolites when they are available and, normal or damaged, they exert a selective action on the proteins of the blood, retaining within the circulation those which are normal to that organism and excreting those which have become so altered as no longer to be the normal serum protein.

This requires some further elucidation. The old point of view requires one to visualize a kidney so damaged that it will no longer excrete water, and the very small molecules of urea, and uric acid, as well as the larger metabolites, but which will freely pass such enormous aggregates as globulin and albumin. Water metabolism, including the question of anuria and diuresis, and edema, are the simplest of these to understand, and it is known that a nephritic kidney, no matter how advanced the disease, will excrete available water, and that anuria and edema are not at all due to renal failure but to the primary claim of the tissues on water. As long as the tissue thirst remains unsatisfied, there will be no free water in the circulation for the kidneys to excrete. When, through improvement in tissue conditions, water is released, it is returned to the circulation and promptly excreted. The work of Aldrich and McClure [1] in demonstrating the rate of absorption of fluid from the skin in normal and edematous states is the simplest and most perfect proof of this mechanism.

Likewise, the behavior of the kidney toward the metabolites and electrolytes of the blood depends, like a conditioned reflex, completely on the state of the tissues. We speak freely of blood chemistry, have ascertained the normal limits in the blood for numerous substances, and consider figures in excess of these limits unfavorable or dangerous. It is to be hoped that in doing so we recognize that we are interested solely in tissue chemistry—in the concentration of these materials in the cells—and trust that the blood readings give accurate information of cell chemistry. Generally this is true, and in slow or long continued conditions our trust is justified. Situations, however, causing rapid and wide fluctuations demonstrate the fallacies of the orthodox point of view and prove the truth of the theory. When, as the result of an accident, such as an injury, an operation, an anesthetic, acidosis or the like, an individual potentially nephritic—that is, with some degree of vascular, renal, and tissue deterioration—goes suddenly into a uremic state, blood chemistry readings of only moderate height will drop, during the time when the clinical condition is rapidly becoming worse, to normal or low normal figures, and normal figures will temporarily drop quite low. Then, during a period of uremia, the blood readings will increase, until they reach the level usually seen in uremia. If, however, the patient recovers, and if this recovery is rapid, there is seen, during a period of distinct clinical improvement, a tremendous rise in blood chemistry figures, so high that they may exceed the figures considered compatible with continued life, shortly returning to the reading preceding the accident. There are all degrees of this apparent reversal of function from the spectacular ones, through the slower changes where there is only a slight reversal, and, finally, those so slow that the changes in blood chemistry keep pace with the tissue changes, and the orthodox situation is seen.

Thus, there is a primary tissue or cellular priority with regard to the constituents of the blood, just as there is with regard to water, wherein the tissue demand is fulfilled at the expense of the blood and kidneys, before there is available material for excretion. Therefore, the concentration of metabolites and electrolytes in the blood is not entirely an index of the ability of kidneys to excrete them but is a level which is maintained in equilibrium, osmotic and chemical, with the tissues. When this equilibrium is satisfied, the kidneys excrete the constituents in excess of the demand, regardless of the level. For example, the body will remain in nitrogen equilibrium, the kidneys doing their share of the work, whether the total nonprotein nitrogen of the blood stands at 25 or at 100 mg.

THE RENAL EXCRETION OF PROTEIN

Andrews and I found that typical and satisfactory nephritis and uremia were produced in dogs by the

* From Rush Medical College and the Research Laboratories, University of Illinois.

* Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

1. Aldrich, C. A., and McClure, W. B.: Time Required for the Disappearance of Intradermally Injected Salt Solution, J. A. M. A. 83: 293 (July 28) 1924.

intravenous injection of a 5 per cent solution of sodium chloride and the urinary proteins were studied.[2] Postmortem examination of dogs in which severe uremia was produced revealed a marked breaking down of liver tissue with a decrease in calcium and a marked increase in sodium in the liver and we felt that some of the protein in the urine was derived from this source. Identification of proteins can be made only by immunologic methods. With the advice of Dr. Hektoen we prepared a potent precipitin, using liver extract—our anti-dog liver precipitin. The protein excreted during the first hours of artificial uremia in dogs reacted strongly to our anti-liver precipitin, but not at all to an equally potent anti-dog serum precipitin, indicating the presence of liver tissue without serum proteins in the urine. Gradually, however, the liver reaction became weaker and the serum reaction stronger, the liver protein being finally masked altogether. Later, with the same method, we identified central nervous system, muscle and spleen protein in these first fractions of urine.

Using the later portions of urine, showing only serum protein, Dr. Welker [3] succeeded in identifying a toxic peptone radical attached to the protein molecules, giving proof of the principal point in our theory of urinary proteins, since the combined peptone, serum protein radical, was a foreign protein.

The normal renal epithelium is no barrier to the passage of protein. Injected foreign proteins are excreted rapidly through normal kidneys. We have assumed, therefore, in this work the following hypothesis as a working basis: Normal or damaged, the kidney is able to retain within its circulation those proteins which are normal to its body and will excrete proteins foreign to it. The excretion of serum proteins (albumin, pseudoglobulin and euglobulin) in nephritis, orthostatic albuminuria and allied conditions indicates that these proteins have become so altered that they no longer conform to the requirements of the particular organism and are therefore treated as foreign. This process, however, is not confined to the renal capillaries but to every capillary in the body. The marked loss of serum protein in nephritis, falling often to 50 per cent of the normal content, is due to the constant loss through the capillaries throughout the body as well as the renal loss, which may be quite small.

In an artificial nephritis, then, by the simple introduction of sodium chloride into the body there occurs a rapid and marked reallocation of minerals, calcium leaving the tissues, reaching the blood and being excreted, while sodium replaces the calcium in the tissues, notably the liver and the central nervous system. As a result, the vital electrolytic equilibrium is destroyed, cell membranes are broken, cellular integrity is lost, and tissue (liver) protein as such is released, first in the intercellular spaces, passing shortly into the circulation (unaltered) and is excreted as a foreign protein and identified as such in the urine. It is a relatively normal nontoxic tissue protein, retaining its immunologic identity but not belonging in the blood. Shortly, as the process proceeds the cells are further damaged, the protein is split so as to lose its identity, and as this splitting is carried to the proteose-peptone stage the split products become highly toxic. At this point, then, they unite in the blood stream, with a normal molecule of serum protein, the two combined form a foreign protein and are excreted, though the combination retains its identity by the precipitin test.

To prove the theory of the specific, selective action of the kidneys with regard to normal and foreign proteins, the liver of a normal dog is rapidly ground in a ball mill under conditions preventing protein alteration, extracted with physiologic solution of sodium chloride, and the extract injected intravenously in a normal dog. The extract contains liver tissue and normal blood. There promptly appears in the urine a protein identified as liver, with no blood appearing. This liver protein is antigenic and may be used to prepare a pure, high titer anti-liver precipitin.

With regard to the peptone and detoxifying function of serum protein, Dr. Welker has succeeded in hydrolyzing the combined peptone-serum protein radical and in obtaining each in pure form. The serum protein, when injected into a normal dog, remains in the circulation. The toxic radical, when reinjected, appears promptly in the urine in combination with a previously normal serum protein molecule. Further work in process of completion by Dr. Welker indicates that other foreign proteins, notably Bence-Jones protein, are eliminated by the kidneys in a firm combination with normal serum albumin.

CONCLUSIONS

1. The clinical picture of nephritis is due largely to generalized and specialized tissue damage, to disturbance in tissue metabolism and to mineral balance rather than to lack of renal function and retention of waste products and water.

2. The kidney, normal or diseased, exerts a selective action on the proteins circulating in the blood, retaining those normal to that body and excreting those foreign to it.

3. Artificial nephritis and uremia may be produced in dogs by the intravenous injection of a 5 per cent solution of sodium chloride.

4. The urinary protein in these artificial uremias is at first pure tissue protein.

5. When the tissue protein has been split to a toxic stage, it is combined with serum protein, which combination constitutes a foreign protein and is excreted as such.

6. The presence of serum protein in the urine in nephritis is a detoxicating mechanism.

122 South Michigan Avenue.

2. Andrews, Edmund: Experimental Uremia, Arch. Int. Med. **40**: 548 (Oct.) 1927.

3. Welker, W. H.; Andrews, Edmund; and Thomas, W. A.: Identity of the Urinary Proteins in Nephritis, J. A. M. A. **91**: 1514 (Nov. 17) 1928.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MITCHELL AND GUEST, DR. AMBERG, DRS. BLACKFAN AND McKHANN AND DR. THOMAS

DR. FRED W. SCHLUTZ, Chicago: I will limit my remarks to a discussion of Dr. Thomas's paper. The important thing in nephritis is the primary renal insufficiency with resulting nonprotein nitrogen retention in the blood and other body fluids. I would be inclined to doubt that kidney damage or massive operative removal of a large part of the kidney would lead to any other picture. Dr. Thomas stated that the damaged kidney is fully able to excrete water. I believe there is, however, considerable experimental evidence to show that this capacity is definitely limited in the damaged kidney, and that it is limited just as practically all other functional capacities of the kidney are limited. I think one really must not get away from the conception that renal function must be considered as a unit and not as a group of isolated partial functions, one or several of which may be impaired and the others not. There is still, I believe, considerable difference of opinion regarding the theory that chronic renal edema is due to the

thirst of tissue for fluid. There is some pretty good experimental evidence that seems to be at variance with this theory. Dr. Thomas stated that the behavior of the kidney toward the metabolites and electrolytes of the blood depends completely on the state of the tissues. This is a new conception and is quite at variance with the prevailing and heretofore accepted opinions. I am unconvinced that observations on the chemical changes of the blood in uremia are unimportant. I should still place a large part of my reliance on them. The production of nephritis and uremia in dogs by the injection of 5 per cent solution of sodium chloride is, of course, a procedure far more drastic than anything which could conceivably happen in the average case of nephritis. One must consider whether all sorts of tissue protein would not be disorganized in such a procedure and respond in the urine to precipitin tests. The application by Dr. Thomas of the precipitin method of Dr. Hektoen to his problem is indeed ingenious, and his theory that the kidney has specific selective action with regard to normal and foreign proteins is most interesting. The idea that the organism could so readily rid itself of the foreign poisonous proteins appeals to the imagination. It would really be a simple explanation for what has happened. I hope that further experimental work and good clinical proof will substantiate this highly original theory. It would revolutionize the present ideas regarding nephritis and uremia. Dr. Thomas did not mention whether he had data on the human subject. I think it would be necessary to bring forward considerable proof on the human organism in support of his original and interesting views. One must be a little cautious in experimental work in translating the data found in the experimental animal, especially in the case of such drastic procedures, without reserve to conditions as they are found in the human being.

DR. C. A. ALDRICH, Winnetka, Ill.: It is a distinct advance in the treatment of the nephritis problem that four men can get up and talk about these different conditions and separate them into clinical entities. A few years ago one would have heard of different manifestations of the same disease. Here one seems to be hearing about three, at least, different diseases. Dr. Amberg's observations on nephrosis tally closely with my own except that it has not been my experience that low salt feeding did any good to these patients. I have tried it many times but have not been convinced that it was responsible for improvement so in the last few years I have not limited the salt intake. I wonder whether Dr. Mitchell has seen any cases of renal rickets apparently associated with obstructive lesions in the lower urinary tract. Two of our four cases seem to have this as a possible etiologic factor. I cannot say too much about the brilliant approach Dr. Thomas makes to the problem. I think that some such sort of revolutionary attitude in attacking this problem is what is needed. It is to be hoped that some truth will filter out of newer ideas such as he presented. As far as I know he has given the first demonstration of a rational cause for albuminuria. Gross experimental procedures, such as clamping off the vessels and giving violent poisons, do not explain clinical albuminuria. There is one type of nephritis which was not spoken of here. That is the disease called chronic glomerular nephritis, chronic diffuse nephritis, or, as I like to call it, nonspecific nephritis. Last fall, after working for eleven years on this type of case and seeing the patients die off year by year without any good results from the usual method of treatment, and after hearing Dr. Barker talk about the serum proteins and their effect on edema, and having become, as I say, thoroughly disillusioned and disappointed with treatment, I tried giving these patients a full diet with high vitamin content. After about three months of this treatment the patients began to look so much better that I began to enjoy going to my nephritis clinic. Some got out of bed and went back to school. The results have been highly satisfactory so far. We have one patient who entered the hospital a year ago with 15 pounds of edema fluid, who lost his water and now weighs 10 pounds more than he weighed with all his edema. He has been on a high protein diet, with meat three times a day, and he has what anybody would call a chronic glomerular nephritis. This diet has not seemed to increase the amount of nonprotein nitrogen in the blood in any instance, and many times this has been reduced while the patient was eating the high protein diet. This, I think, confirms Dr. Mitchell's suggestion that these patients be put on a sufficient diet. In addition to these results, as far as the chemical changes in the blood are concerned, we have had four patients who have turned up with negative urines, whereas I had never before seen a person with chronic nephritis appear in the dispensary with a negative urine. Three of the four still are clinically well. The other has now merely albuminuria.

DR. HERMAN SCHWARZ, New York: Dr. Blackfan's therapy is excellent. In these cases I have tried with success Dr. Volhard's suggestion of total starvation; I mean from twenty-four to forty-eight hours' total abstinence from food and fluids. Since 1921, in collaboration with Dr. Jerome Kohn, I have studied and followed thirty-one cases of nephrosis. We have had cases of only four months' duration proved by postmortem examination, but of course cases of long duration are the rule. We have asked ourselves the following question: 1. Is nephrosis primarily a disease of the kidney? 2. What rôle does infection play? 3. Do the endocrine glands play a rôle? 4. What is the edema due to? 5. What is the hypercholesteremia due to? 6. Do the edema and increased cholesterol go together? Of course I cannot answer all these questions. In brief, I might say that we believe that (1) this disease is not primarily a kidney disease; (2) infection does not play an important part in the etiology; (3) the thyroid except for its usual rôle in water metabolism is not an important factor; (4) just what the edema is due to, no one can say, but we do not believe that it is due only to loss of protein in the urine; (5) the cause of the cholesteremia is not known, and (6) the edema and cholesteremia are not always increased (sometimes one is increased and the other remains the same or vice versa).

DR. JOHN D. LYTTLE, New York: I have asked Dr. Mitchell why it is that some children with chronic nephritis get renal rickets and others do not. I have studied cases of chronic nephritis that began at the age of 6 years and went on for three and four years with an extreme degree of renal insufficiency. That is, the children had anemia, nitrogen retention, a low calcium and high phosphate content of the blood and acidosis. Yet, Dr. Caffey and others have never been able to demonstrate any bone changes that suggest renal rickets. I believe from studying the paper of Drs. Mitchell and Guest last summer and from a study of the literature in general that the children with chronic nephritis who have the bone changes called renal rickets will be found to have the disease either from early infancy, perhaps in the uterus, or at any rate during the period of the first five or six years of life, the period of the most active growth. One is struck on reading the figures given by Drs. Mitchell and Guest with the number of congenital anomalies, double urinary obstruction, congenitally hypoplastic kidneys and cystic kidneys. I think that chronic renal insufficiency during early infancy is what in all likelihood causes the bone changes.

DR. SAMUEL KARELITZ, New York: Two years ago in discussing a paper on "renal rickets" by Schoenthal and Burpee, Dr. Béla Schick referred to such a case which we were observing. This child, followed for about eighteen months, received treatment with 0.3 cc. of viosterol daily for six weeks and, after a rest period of three months, 0.25 cc. daily for six weeks. This represents about twice the maximum dosage administered in severe cases of rickets at present. Roentgenograms of the skeleton revealed some interesting changes which I should like to demonstrate with the aid of some slides. The first slide shows the dwarfism and bony deformities of a white child with renal rickets as contrasted with one of the average height and weight for the age. The second slide shows the bones of the forearm as first seen, with marked osteoporosis and moth-eaten irregular epiphyses. The third slide shows improvement in the bones after six weeks of treatment with 5 minims of viosterol daily. The bone is denser and the epiphyses are cleaner and more sharply defined. The fourth slide shows the same bones six months later. There seems to be a subluxation at the wrist, but I believe that these deformities are in the bones and were probably influenced by the child supporting herself on her hands while in the sitting position. In the soft parts the blood vessels can be outlined with ease owing to calcification. I have other slides showing calcified masses intra-abdominally which I shall show to any one who is interested in seeing them. These

observations are presented not to reflect on the use of viosterol but to call attention to the possibility that, when renal disease exists and with that a tendency to arterial change, it should be used with great caution, if at all.

DR. A. GRAEME MITCHELL, Cincinnati: To answer Dr. Aldrich's question, exactly the same conditions, such as stunting of growth, infantilism and bone changes, come about in patients who have chronic obstruction of the genito-urinary tract, either acquired or congenital, and it is simply an end-result of that situation, exactly the same as in the patients with the small, shrunken kidneys. I cannot answer Dr. Lyttle's question except to say that I think his explanation is probably correct, namely, that if these obstructive conditions or the renal insufficiency occurs in very early life then the bone changes take place. In an attempt to solve this matter we collected a large group of case reports of patients with and without the bone changes. We attempted in every way to analyze these two groups to see whether we could make out any difference in them. It was not possible to discover any difference with the exception that it seemed as though in the patients with the bone changes the nephritis or obstructive condition probably started earlier in life. In my experience with the treatment of edema in so-called nephrosis, the best treatment and, it seems to me, the only one I understand, is to do nothing for the patient. That is, edema appears and disappears and the condition changes, apparently regardless of what is done.

DR. W. A. THOMAS, Chicago: I realize, and have frequently been made to realize, that it is practically heresy to attempt to divorce the kidneys from nephritis. With regard to Dr. Schlutz's remarks, I did not mean to indicate that I was not considering the renal factor in nephritis. I realize that the kidneys are possibly more damaged than other organs, and they are unable to excrete water and metabolites as readily as normal kidneys do; but simply because they partake in this general damage which occurs in nephritis and because of that reason there is delay in excretion of water. Fundamentally the water metabolism is not due to the kidneys primarily, their inability to excrete it, but due to the claim of the tissues on it. With regard to experimental bilateral nephrectomy, I must disagree with Dr. Schlutz, because frequently dogs live a number of days, six, eight, ten, and will die with lower blood pressures. There is work being carried on at the Presbyterian Hospital, on another method of causing complete renal insufficiency, and that is practically always the situation. I have not meant to minimize the importance of blood chemistry. I meant simply to indicate the importance of the tissue element in determining the level at which the blood chemistry figures remain, rather than total inability of the kidneys to excrete water and metabolites. We produced the same picture and the presence of tissue proteins, notably liver, protein in dogs, giving anesthetics, and for a number of hours following an anesthetic there appears in the urine of dogs a protein which is purely a tissue protein. The same thing happens in the human being. We have carried on a large number of experiments making antiserum precipitants for human organs and have obtained, following anesthetics, exactly the same mechanism. I realize that the method of producing nephritis and uremia by injection of large doses of chloride is entirely artificial and we have called it artificial uremia. The mechanism, nevertheless, I think, is invaluable because of our observations in anesthetia and other methods of producing tissue damage, which resulted in excretion of tissue proteins in the same combination.

DR. SAMUEL AMBERG, Rochester, Minn.: With regard to the discussion of Dr. Aldrich: we talk about low intake of salt and not a salt-free diet. We do not give extra salt, but I have seen cases in which a liberal allowance of salt did cause an increase of the edema, exactly as described by Widal and Strauss. As to the remarks of Dr. Mitchell: I think I brought out that one must figure with the spontaneous variations in the edema. This is highly important. Sometimes one does not know how they come about, but I cannot follow him when he says that measures for the production of diuresis are of no avail or should be dispensed with. In one of our cases, on a number of occasions edema disappeared with administration of urea and reappeared on cessation of its administration.

BLEEDING OF BENIGN ORIGIN*

LEO KESSEL, M.D.
NEW YORK

Hemorrhage from an external bodily orifice is a dramatic symptom frequently of ominous portent. Acute bleeding arouses at least three grave suspicions—a blood dyscrasia, the ulceration of a malignant neoplasm or a chronic inflammatory process, particularly tuberculosis.

This report deals with a group of patients whose presenting symptom was hemorrhage but in whom serious organic disease was excluded. The diagnosis of bleeding from benign cause, furtively advanced at first, was borne out by thorough investigation and later observation in the follow-up clinic.

HEMOPTYSIS OF BENIGN ORIGIN

Hemoptysis immediately suggests tuberculosis or the ulceration of a malignant intrapulmonary neoplasm. Nevertheless, direct visualization by bronchoscopy may at times reveal that the bleeding arises from a benign source, such as a hemangioma:

REPORT OF ILLUSTRATIVE CASES

CASE 1 (courtesy of Dr. A. M. Fishberg).—D. R., a woman, aged 39, coughed up half a glass of blood two years ago. She was sent to the country with a diagnosis of pulmonary tuberculosis, and there she improved greatly. Since her return she has again expectorated blood on more than six occasions. She consulted Dr. Fishberg, who referred her for bronchoscopy. The laryngologist observed a plexus of dilated veins at the base of the tongue, from which the bleeding had undoubtedly occurred. On questioning, the patient then gave the history that the blood filled her mouth before she began to cough.

CASE 2 (courtesy of Dr. Rudolph Kramer).—N. N., a man, aged 32, had coughed up blood-streaked sputum for two and a half years. Laryngoscopy revealed a reddish tumor in the middle of the left vocal cord. The growth was removed and the microscopic diagnosis was cavernous angioma. There has been no recurrence for two and a half years.

Again, hemoptysis of benign origin may arise as the result of the ulceration of the granulation tissue around a foreign body:

CASE 3.—H. M., a youth, aged 19, was first admitted, in 1925, with a complaint of blood spitting. He brought up about two ounces every ten days. In addition, he had pain in the chest, night sweats and chilliness. Physical examination revealed anemia, clubbing of the fingers and a suspicious infiltration in the right upper lobe. The diagnosis was pulmonary tuberculosis, and the boy was discharged from the hospital. He rested at home for three months and, although he felt well, he nevertheless had four or five more hemoptyses. Bronchoscopy at this time showed the right lower lobe bronchus to be filled with a mass of granulation tissue, which bled easily. A broncholith was removed and its kernel was a piece of the shell of a nut. Since then he has had repeated hemoptyses from these granulations, which persist despite frequent cauterization by bronchoscopy.

In one instance the diagnosis of lupus of the trachea was made by the bronchoscopist and it was from this area that the bleeding occurred:

CASE 4.—B. H., a woman, aged 46, complained of hemoptyses of three years' duration. All examinations were normal and bronchoscopy revealed a lesion of the trachea resembling lupus. She received radiotherapy and was free from bleeding for ten months, after which she had another hemoptysis. On

* From the Medical Service of Mount Sinai Hospital.
* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

her readmission to the hospital a bronchoscopic examination was again made and the lesion was cauterized. The bleeding has not recurred.

Benign tumors of the bronchus may also give rise to extensive bleeding:

CASE 5.—A. J., a woman, aged 49, had had repeated hemoptyses for nineteen years. A biopsy done in 1918 from a bronchoscopic specimen revealed the presence of carcinoma. The patient was admitted to Mount Sinai Hospital, April 3, 1931, after having had four small hemoptyses in five weeks. Bronchoscopy revealed a granular mass obstructing the right main bronchus just below the level of the bifurcation. Pathologic examination of the excised specimen revealed adenoma.

CASE 6.—A. G., a housewife, aged 36, was admitted to the hospital three times with complaints of hemoptyses. Roentgen examination showed a persistent inflammatory process of the right middle lobe and, on bronchoscopy, this was found to be due to a rounded mass in the right middle lobe bronchus. Section showed an adenomatous tumor, which was almost entirely removed after several bronchoscopies. Nevertheless, the patient has continued to bleed, and the lung tissue beyond shows a chronic inflammatory change, the result of the prolonged stasis.

BENIGN HEMATEMESIS

Vomiting of blood suggests ulceration, either benign or malignant, in the stomach. Bleeding from esophageal varices frequently occurs also, particularly in persons addicted to alcohol, with cirrhosis of the liver. The bleeding, however, may occur from less ominous causes, such as telangiectases unrelated to obstruction of the portal circulation:

CASE 7 (courtesy of Dr. Asher Winkelstein).—M. K., a man, aged 53, gave a typical history of duodenal ulcer from 1925 to 1927. On frequent occasions he vomited large quantities of blood. He developed secondary anemia with a hemoglobin content of 45 per cent. Partial gastrectomy for ulcer was performed. On one occasion he bled anew, and investigation at this time revealed that he had multiple telangiectasis involving the nose, tongue and lips. A further questioning into his history revealed the fact that he had frequent nosebleeds and that the condition was a familial one.

MELENA OF BENIGN ORIGIN

Blood in the stools as the result of hemorrhoids occurs frequently. When this is not the cause of the bleeding, however, a malignant process is a justified suspicion. Occasionally melena may result from one of the hemorrhagic diseases:

CASE 8.—M. B., a woman, aged 30, was admitted to the hospital with abdominal cramps and bloody stools. Three weeks previously she had had a sore throat, and shortly after her admission she developed an eruption over the hands and back that was typical of erythema nodosum. Her other examinations showed normal conditions, and the bleeding ceased when the eruption disappeared.

Again, the bleeding may occur from a local blood-vascular tumor:

CASE 9.—J. S., a woman, aged 45, was admitted to the hospital with a complaint of bloody stools. The hemoglobin fell to 12 per cent. She received four transfusions of blood, and investigation failed to disclose any abnormality until proctoscopy revealed a small nevus within the anal ring. This was cauterized, and she has been symptom-free for the past two years.

At times it may be impossible to make a diagnosis of the cause of the bleeding, and yet the course of the disease may illustrate the benign character of the lesion:

CASE 10.—R. N., a woman, aged 50, entered the hospital with cholelithiasis, hypertension and bloody stools. None of the examinations threw any light on the etiology of the melena. The blood pressure fell to normal and the hemoglobin rose while she was in the hospital. She was discharged and has never had any further bleeding.

CASE 11.—M. L., a girl, aged 20, was admitted with a complaint of blood in the stools but no other symptoms. She bled for three weeks while she was in the hospital. All examinations showed normal conditions, except that she had a hemorrhagic retinitis. This cleared up, as did the gastro-intestinal symptoms. She was discharged and has had no bleeding since.

CASE 12.—R. D., a woman, aged 29, also had profuse bleeding from the rectum. The hemoglobin was 55 per cent. All other examinations were normal. The bleeding ceased; the hemoglobin rose, and she was discharged and has been symptom-free ever since.

Benign bleeding from urethra and vagina are of such frequent occurrence as to require no further comment.

COMMENT

Patients who present the ominous symptom of hemorrhage may ocasionally suffer from a benign lesion, and the disease may run a propitious course. The diagnosis of benign bleeding, however, must never be hazarded until all available examinations have excluded the presence of a blood dyscrasia, malignant neoplasm or chronic inflammatory process, such as tuberculosis. It is unwise, furthermore, to advance this diagnosis unless the benign lesion can be visualized by some direct method of examination, such as bronchoscopy or proctoscopy. Indeed, even in cases in which a malignant process has been excluded and a benign process demonstrated, the cautious diagnostician will proceed with the knowledge that the patient with a benign cause for bleeding may harbor a malignant disease as well. Although I am conscious of all these evil forebodings, I have presented this group of patients to illustrate the fact that extensive bleeding may result from a benign lesion and either completely cease or be prevented by local forms of treatment.

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ABSTRACT OF DISCUSSION

DR. FRANK SMITHIES, Chicago: I was impressed by the number of women patients. One should never forget the possibility of hemorrhage from a lesion in a woman in relationship to the menstrual cycle or at the menopause. Bowen and I, in 1917, reported a considerable series of instances in which, on account of hemorrhage, extensive operations were performed on abdominal organs, when, if the history had been interpreted in the light of the menstrual function of the female in relation to the hemorrhage, some of the disastrous consequences of operation would have been avoided. We showed that a lesion of ulcerative type or any lesion of the mucous surface where the surface was broken, in an individual with a constitutional predisposition or tendency to seep blood, actually often bled extensively shortly before or during the menstrual period or at the menopause or at irregular menstrual cycles. Therefore, it seems we should always get the relationship of bleeding in women to the menstrual cycle or to the menopause. One group of patients to which I would call particular attention comprises those whose occupation keeps them in close relationship with some of the volatile hydrocarbons. I have had a number of people working in research laboratories—for example, oil refineries—or men who handle gasoline or benzine, who came in with obscure hemorrhage, particularly hemorrhage from the lungs, but in three cases there was hematuria. In one case there was intermittent vomiting of blood-stained material. The hemoglobin was low; the individual exhibited most striking evidences of severe anemia, and smears revealed definite damage to the bone marrow. It was found, however, that practically all of the hemorrhagic specimens exhibited laked or partially laked blood. In one young girl in whom pulmonary tuberculosis was suspected and who had been confined to an institution for a considerable time, this laked blood appeared in large volumes. The girl was employed in a laboratory devoted to research on volatile oil

derivatives. In this type of case it is easy to suspect tuberculosis or some severe blood dyscrasia, unless careful physical and roentgen studies are made. The permeability of the alveolar walls, in the lung, leads to a saturation of the blood with the volatile hydrocarbon to a degree adequate to produce laking in the vessel, and this is followed by seepage from the capillary bed.

DR. HYMAN I. GOLDSTEIN, Camden, N. J.: Dr. Kessel did not mention hematuria or rectal and uterine bleeding. These "benign" hemorrhages may also occur in heredofamilial angiomatosis. Some members of an affected family may be "skipped," explained by atavism, or some patients may bleed with or without evident telangiectases. In 1930 I reviewed the literature and reported a series of three groups of patients of my own with this disease. There are now probably on record ninety or ninety-five families, including about 500 individuals, thus affected. Many cases are not diagnosed and not reported. I might state that the presence of angiomas, telangiectases, red, pin-point lesions on the lips, buccal mucous membrane, nose, and other parts of the body does not necessarily exclude a malignant condition in a case of gastric bleeding (or true gastric ulcer). I have already referred to Osler's case of a man, who had familial telangiectases with epistaxis and who, at necropsy, was found to have gastric telangiectases, with an extensive carcinoma. In these types of hemorrhages there may be a distinct "atavistic" tendency, so that a patient who comes to the office with severe gastric bleeding, perhaps, as a result of gastric telangiectases, but without a definite history of familial nosebleed in his immediate family, with or without evidence of telangiectases in other members of his family, during his generation, may be an instance of this familial clinical entity. In one family I reported there were eleven persons affected. In March, 1931, I saw a woman, aged 42, who was suffering severely from this disease. I also saw her mother, who was similarly affected. Her daughter, brothers, sisters, uncles and grandparents were also affected—a total of eighteen or nineteen members in this family who had various degrees of nasal hemorrhages. Let us not go away with the definite assurance that fatalities may not occur. A number of deaths have been reported from severe uncontrollable hemorrhages and, after a number of years, from severe secondary anemia. The patient I reported in 1921 just died (July, 1931) as a result of severe and persistent recurring epistaxis and marked secondary anemia, in Atlantic City. The differential diagnosis must be made from the various purpuras, hemacelinosis, hemogenia (Emile-Weil), afibrinogenia (Opitz and Frei), hereditary thrombasthenia (Glanzmann), aleukia hemorrhagica (Frank), familial thrombocytopenia, hemophilia, pseudohemophilia, leukemia, tuberculosis, deficiency disease, splenic anemia, and other anemias. Specialists who see these patients may overlook the renal nature of the "benign bleeding."

DR. GEORGE H. GREGORY, Versailles, Ky.: I should like to ask the author only whether or not in these cases of benign bleeding, after some length of time, one may get symptoms of a primary anemia; I mean in patients who have lost considerable blood over a long period of years and who may show symptoms of vomiting and other symptoms of the primary anemia. I wondered whether or not ordinarily with his series he found cases of benign bleeding that resemble in a good many respects pernicious anemia.

DR. LEO KESSEL, New York: I will answer the last question first. I have never seen a picture of pernicious anemia that developed under these circumstances. None of the patients showed the evidences of primary anemia. The discussion has brought out a further interesting group in connection with the bleeding which fails to disclose its origin in either a malignant form of neoplasm or tuberculosis. In the case that the second speaker asked about there was no familial bleeding and no telangiectasis. The emphasis that the second speaker also laid on the type of case in which there is familial telangiectasis, and at the same time carcinoma, as Dr. Osler described a number of years ago, was well placed. I saw an example of exactly the same type, about ten years ago: a man whose bleeding was regarded to be the result of telangiectasis, his only other symptom being nausea. He subsequently died, and at the autopsy carcinoma of the pylorus was found. I would emphasize in connection with the group of cases that I described the fact that so many of the patients appear in the hospital as very ill people. In one girl the hemoglobin was 12 per cent, and in other instances the hemoglobin was as low as 40 or 45 per cent; that, I think, is apt to be misleading unless one keeps in mind the fact that the bleeding may be of benign origin or from a benign lesion. These people really look ill. This girl, for instance, was blanched, and it appeared as though she had been bleeding from a condition which was of an extremely serious nature, but it was found to be a simple condition. None of my cases of ulcerative colitis, of which I have had a large number, have been baffling in that particular respect because they have all come into the hospital with the evidence of true ulcerative colitis. It wasn't difficult to recognize that the blood in their stools was a manifestation of underlying disease—ulcerative colitis.

INCIDENCE AND VARIETY OF HEART DISEASE IN SCHOOL CHILDREN OF SAN FRANCISCO

TWO YEARS' SURVEY *

INA M. RICHTER, M.D.
SAN FRANCISCO

The increasing death rate from heart disease, whether real or apparent, has led to much mass investigation [1] and to the appearance of numerous articles on the subject. The more critically one scans such articles, the more convinced one becomes that, with the exception of syphilitic heart disease, very little is known about the etiology, prevention or prognosis in cardiac disease.

A determination of the incidence of heart disease must be one of the important methods of approaching a solution of the problem. The earlier articles have given the incidence in hospital and clinical admissions,[2] and more recently there have been surveys of groups of employees [3] and of school children.[4] In general, about 1.5 to 2 per cent of the population seem to be suffering from heart disease. By the time the patient seeks the physician or the clinic, the condition is already well established, so that treatment must be directed along palliative rather than curative or preventive lines, and the problem of causation can be studied only through a review of the histories of the patients. As it has already been pretty well established that the beginning of most heart disease is in early childhood,[5] data obtained from the histories of older individuals must of necessity be limited. The incidence of some forms of heart disease seems to vary with location.[6]

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* From the Department of Medicine, University of California Medical School.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

1. Cohn, A. E.: Heart Disease from the Point of View of Public Health, Am. Heart J. **2**: 275 (Feb.), 386 (April) 1927. Wyckoff, John: Etiology in Organic Heart Diseases, ibid. **1**: 446 (April) 1926. Dublin, L. I.: Statistical Aspects of the Problem of Organic Heart Disease, ibid. **1**: 359 (Feb.) 1926. Emerson, Haven: Economic Aspects of Heart Disease, ibid. **4**: 251 (Feb.) 1929.

2. Stone, C. T., and Vanzant, F. R.: Heart Disease as Seen in a Southern Clinic, J. A. M. A. **89**: 1473 (Oct. 29) 1927. Benjamin, J. E.: The Heart Disease Situation in Cincinnati, Am. Heart J. **3**: 637 (Aug.) 1927. Viko, L. E.: Heart Disease in the Rocky Mountain Region, ibid. **6**: 264 (Dec.) 1930. Coffen, T. H.: The Incidence of Heart Diseases in the Pacific Northwest, ibid. **5**: 99 (Oct.) 1929.

3. Matz, P. B.: Statistical Studies Bearing on Problems in the Classification of Heart Disease: V. Heart Disease Among Ex-Service Men, Am. Heart J. **4**: 313 (Feb.), **4**: 455 (April) 1929.

4. Cahan, J. M.: The Incidence of Heart Disease in School Children, J. A. M. A. **92**: 1576 (May 11) 1929. Benjamin (footnote 2). Leipoldt, C. L.: Organic Heart Disease in Transvaal School Children, M. J. S. Africa **15**: 180 (March) 1920

5. Clark, Taliaferro: Heart Disease as a Public Health Problem, Pub. Health Rep. **44**: 2463 (Oct. 11) 1929.

6. Siegal, David; and Siegal, Beatrice C.: Studies in the Epidemiology of Rheumatic Fever, J. A. M. A. **89**: 11 (July 2) 1927. Clark, J. T.: Epidemiology and Statistics, Geographical Distribution, J. Trop. Med. **33**: 249 (Sept. 1) 1930. Young, M.: The Geographical Distribution of Heart Disease in England and Wales and Its Relation to That of Acute Rheumatism, Lancet **2**: 590 (Sept. 19) 1925.

San Francisco is a city with a mild climate and, for the most part, good living conditions. Over 91,000 children are enrolled in its city schools. In March, 1929, the Children's Health Center of the American Association of University Women, in cooperation with the city health department, began a survey of the incidence of heart disease among the children, and the present paper is of the nature of a preliminary report on this work. The center is financed by the community chest and the city health department. The clinicians are members of the two university medical schools, and the nursing staff is furnished by the health center and the city health department. In addition, there are a paid technician and a cardiac field worker, furnished by the San Francisco Tuberculosis Association. The center is an integral part of the San Francisco Heart Committee through the committee on schools. Its function is purely diagnostic and educational. In addition to the equipment necessary in making a routine physical examination, the center is furnished with roentgenographic and fluoroscopic units and a cardiograph.

According to the present system, the school child is examined at the school which he attends by a physician employed by the city health department, and the presence of a murmur or any other sign or symptom referable to the heart is noted. The health department nurse then makes the contact with the parents, and if the child is not already under the care of a physician or outpatient department clinic, the parent is advised to bring the child to the cardiac center for diagnosis. On the first visit to the center, the history is taken and physical examination made and recorded on the forms of the American Heart Association. If the condition is frankly organic, roentgenograms and cardiograms are ordered, and the child is asked to return with his parent for diagnosis and conference. The child is then referred to a physician or to an outpatient department for treatment and observation, and is asked to return once a year to the center for a checkup. A letter with complete diagnosis is sent to the physician or the outpatient department of the parents' choice. Patients with functional and doubtful conditions often make more than two visits to the center before a diagnosis is established. The center cooperates closely with the physical education department of the schools by sending, at the close of each session, a list of the children examined, with the functional capacity rating of each. The physical education teachers and nurses at the schools have copies and explanations of this rating as furnished by the American Heart Association. A child's functional capacity is adjudged after careful consideration of his symptoms, the results of physical examination and his performance of the exercise tolerance test.

About 2 per cent of the total school population have been reported by the school physicians as cardiac suspects. Approximately half of these suspects report to the cardiac center, the other half being already registered in some outpatient department or being under the care of a private physician. During the past two years (March, 1929, to March, 1931) 843 children have been examined, and 319 of these were found to have organic lesions. These figures do not, of course, in any way represent the true incidence of heart disease among school children, as the entire group has not as yet been examined. Moreover, the more serious cardiac cases, those in which there has been disability, are more likely to be already under observation; i. e., there is probably a higher incidence of heart disease among suspects not reporting to the center than among those who do. A large proportion of the children reporting to the center have never had the services of a physician or a clinic.

All cases have been roughly dvided into organic or cardiac, and functional or noncardiac. The organic cases fall into the three groups: congenital, rheumatic syndrome, and infections other than rheumatic. It was rather surprising to find that 140 of the 319 organic cases showed congenital lesions. Not only did all cases in this group show definite and characteristic clinical signs, but the majority presented positive roentgenograms. The observations in this group of cases rather parallel those of Dr. Edith Irvine-Jones [7] in her survey of 100 cases in San Francisco in 1926. In the past, one has rather had the feeling that the congenital cardiac patient either dies in early infancy and becomes a pathologic curiosity or has a mild and asymptomic case; but that is not the impression one gathers from the series of cases that Irvine-Jones followed over a period of ten years. Twenty-nine of her patients had already succumbed at the time of reporting and, although half of these were infants under 6 months of age, there were enough in the older age group to make the conditions a matter of concern, especially as most of the deaths were due not to congestive failure but to coincident infection, especially infection of the respiratory tract. But, in addition to this factor of the lowering of resistance, it is clear that these children have considerable disability. Dr. Irvine-Jones found that 71 per cent of her patients showed disability of some kind, and my associates and I have found that 77 per cent of our patients did. The complaints noted, given in the order of frequency, were dyspnea, cyanosis, fatigue, pallor, epistaxis, precordial pain, syncope, failure to gain, palpitation, convulsions, vertigo and tremor. There were seventy-three boys and sixty-seven girls, ranging in age from 5 to 18 years. We have not attempted to classify the lesions anatomically or to go deeply into the family history, deeming such intensive study to be the function of the clinic or the physician to whom the child is referred.

One hundred and fifty-one of the 319 patients belonged to the rheumatic syndrome group. There were eighty-one boys and seventy girls from 5 to 18 years of age. This group includes twenty-five patients presenting rheumatic fever and chorea, in whom as yet no valvular lesion was detected, although they had positive histories and many of them showed changes in the cardiogram and the roentgenogram. Of the remaining 126, 116 showed mitral valvular disease, 7 aortic valvular disease, and 3 combined aortic and mitral valvular disease. A study of the etiology in these cases was most interesting. Sixty-three of the patients gave a history of one or more attacks of rheumatic fever or chorea or both. As has already been stated, twenty-five of these sixty-three children as yet did not show any detectable valvular lesion and the remainder had lesions typical of rheumatic endocarditis. The remaining eighty-eight also had lesions typical of rheumatic endocarditis, although in fifty-eight instances there was an antecedent history only of growing pains, arthritic pains, tonsillitis or an unexplained fever, variously called influenza, carditis and pneumonia; and in thirty instances there was no discoverable etiology. Such cases of unknown etiology, but presenting endocarditis

7. Irvine-Jones, Edith I. M.: A Clinical Study of Congenital Heart Disease in Childhood, Am. Heart J. 2: 121 (Dec.) 1926.

characteristic of rheumatic fever, have been noted in a number of recent surveys and classified under the rheumatic syndrome group rather than under heart disease of unknown etiology, and more recently Major Munly [8] has shown that this unknown group with characteristic rheumatic valvulitis have life histories in all respects similar to those giving a frank history and valvular lesions characteristic of rheumatic fever and chorea.

Since the appearance of Albert's [9] articles calling attention to the possible rôle that infections [10] other than rheumatic fever may play in the causation of heart disease, especially in later life, we have been keeping a careful record of those children giving a history of scarlet fever or diphtheria or both. We found that 138 of the total number examined gave such a history. In eighty of these no organic lesion could be found; eighteen had already been classified in the rheumatic group and twelve in the congenital group. The remaining twenty-eight showed definite cardiac lesions and all but six had definite complaints, often multiple, of fatigue, pain, pallor and dyspnea. The roentgenograms and cardiograms invariably showed abnormalities.

The functional capacity ratings in the three groups of cases are rather interesting. Among the congenital cases there were 72 per cent in class 1, among the rheumatic group 50 per cent and in the scarlet fever-diphtheria group 32 per cent. In classes 11 *a* and 11 *b* there were 26 per cent congenital, 45 per cent rheumatic, and 70 per cent scarlet fever-diphtheria. This is about what one would expect, the least functional disability in the group with the least myocardial involvement and the greatest functional disability in the scarlet fever-diphtheria group, in which the history and lesion suggest myocardial rather than endocardial damage.

The functional or noncardiac group,[11] comprising some 524 cases, is not without interest to us. As has already been stated, eighty of these patients give histories of scarlet fever and diphtheria and may later develop definite cardiac lesions. In other words, they are probably potential cardiac patients in much the same sense as are the twenty-five patients giving positive histories of chorea and rheumatic fever but as yet giving no evidence of valvulitis. But, as the group is not yet sufficiently defined, we have spoken of them as noncardiac rather than as potential. A large number of the functional cases are, of course, frankly noncardiac, giving no murmur at the time of examination, or showing murmur secondary to undernutrition, anemia and so forth. Some of the patients had murmurs so closely resembling congenital basal murmurs that roentgenograms were made and the cases excluded from the congenital class because of various postural and vertebral column abnormalities. The physical education department is cooperating with us in this group by giving them special exercises for the correction of defects, and they will be followed at the center with great interest.

8. Munly: Personal communication to the author.
9. Albert, Henry: Increasing Mortality from Heart Disease, J. A. M. A. **89**: 1312 (Oct. 13) 1927; The Increase in Heart Disease, ibid. **88**: 2021 (June 25) 1927.
10. Swift, H. F.: The Heart in Infection, Am. Heart J. **3**: 629 (Aug.) 1928.
11. Washburn, A. H.: Functional Disorders Versus Organic Heart Disease in Childhood, California & West. Med. **34**: 179 (March) 1931. White, P. D.: Observation on Functional Disorders of the Heart, Am. Heart J. **1**: 527 (June) 1926. de Bruin, J.: Some Deviations of Heart and Blood Vessels in School Children, Nederl. Tijdschr. v. Geneesk. **1**: 2192, 1925; abstr. Am. J. Dis. Child. **31**: 575 (April) 1926. Hamilton, R. L.: The Child's Heart in Health and Disease, Arch. Pediat. **47**: 405 (July) 1930

The whole study to date forms too small a series to permit the deduction of definite or far-reaching conclusions, but it does, I think, suggest a number of possibilities for further study. First of all, such a center, which is neither a hospital nor an outpatient department, does attract cases which would otherwise be overlooked until much later in life. Secondly, it gives one an opportunity to follow many cases from early beginnings through a period of ten or twelve years of school life. In the clinical study the following points may be stressed:

1. Congenital lesions are not uncommon, and they give rise to symptoms and physical disability, though to a far less degree than do rheumatic endocardial and myocardial lesions.

2. The valvulitis characteristic of the rheumatic syndrome is not uncommon in a mild climate like that of San Francisco, but its manifestations are much less dramatic and its inception is far more insidious.

3. Scarlet fever and diphtheria are apparently factors in the causation of organic cardiac disease, and the type of lesion found in these cases suggests the myocardial lesions of later life.

4. The center furnishes an opportunity for the study of the causation of functional murmurs.

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ABSTRACT OF DISCUSSION

DR. FRANCIS SCOTT SMYTH, San Francisco: I am interested, usually, in the individual case. However, there are certain things that impressed me in Dr. Richter's work. San Francisco had a recent survey by Dr. Hiscock, who pointed out that whereas we had adequate, or fair, means for studying tuberculosis and a fair knowledge of our situation with regard to its incidence, the same could not be said with regard to heart disease. When I first came to San Francisco, it was currently said that rheumatic heart disease was an extremely rare condition, that I would not find it at all frequent. Following a short period of service in one of the hospitals, I came to the opposite conclusion. I think it is only by such a diagnostic clinic as Dr. Richter manages that we shall get the happy medium between the two extreme points of view. The survey from Cleveland by Dr. Ritter, which is a little more complete, gives figures that are quite comparable to those that Dr. Richter has found. I think that in time Dr. Richter's studies will be of increasing importance, comparing them with the Eastern centers.

DR. JACOB M. CAHAN, Philadelphia: This is an important subject, especially since heart disease, as Dr. Richter said, often begins in childhood. In Philadelphia there are over a quarter of a million children in the public schools, and I took the liberty in 1927 and 1928 to examine more than 10,000 of them for heart disease. The most striking difference between Dr. Richter's observations and mine appears to be that I did not get quite as many congenital heart cases as Dr. Richter has discovered. I would be interested to know just what were the bases on which the diagnosis of congenital heart disease was made. It is certainly important to continue such investigations. Dr. Richter ought to be congratulated because her work in such a large city, with over 90,000 children, will perhaps stimulate physicians in other cities to make similar surveys. The sooner we get at the bottom of the cause of heart disease, and the sooner we improve the inadequate convalescence in cases of rheumatic disease and other diseases that damage the heart, the sooner shall we be able to remove heart disease from its present place, at the head of the list of causes of death.

DR. INA M. RICHTER, San Francisco: I have nothing further to add except to tell Dr. Cahan that great care was taken with the diagnosis, naturally, because the large number of them was so surprising. In no case that we have positively diagnosed as congenital has the patient gone away until after being examined by three people at least and until they had gone over all the earmarks of congenital heart disease.

THE TREATMENT OF OBESITY WITH LOW CALORIC DIETS*

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The excess weight in obesity has been shown to be fat deposited as an inert storage tissue.[1] The removal of this excess weight can be accomplished only by the burning of these fat stores in direct proportion to the difference between the energy intake and the energy output. However, the energy output of obese persons has been shown to be relatively much higher than is normal for them if of normal weight. Although it is true that the basal metabolic rates in obesity fall within normal limits, much higher figures are obtained if the calories per hour oxygen exchange, from which the basal metabolic rates are computed, are related to the active body tissue represented by the ideal weight. For example, a woman, aged 41, whose ideal weight was 133 pounds (60 Kg.), actually weighed 216 pounds (98 Kg.). Her basal energy output was 74 calories per hour, which gave a basal metabolic rate of minus 4 when related to her actual weight but a rate of plus 23 when calculated on her ideal weight. In other words, this patient as far as her real self, her active useful tissues, was concerned was operating at a level 27 per cent higher than was normal for her. Another woman, aged 50, whose ideal weight was 131 pounds (59 Kg.), actually weighed 206 pounds (93 Kg.). Her calory per hour oxygen exchange was 69, giving a basal metabolic rate when calculated in the ordinary way of plus 4, a normal figure. When related to her ideal weight, these calories per hour gave a basal metabolic rate of plus 25. Such a level of metabolism under ordinary circumstances would be associated with thyrotoxic symptoms. These figures provide one index of the increased work which is done by the obese in merely living. Since, therefore, the daily energy output of these patients is dangerously high, it is obvious that the caloric deficit necessary for weight reduction should not be attempted by further increase of this factor. On the contrary, the attention should be focused on an adequate depression of energy intake by limitation of the diet.

REQUIREMENTS OF A LOW CALORIC DIET

Quick reduction by dietary measures depends on a calory intake which is as low as is compatible with good health. In limiting the diet, certain facts must be kept in mind lest the patient be damaged as in starvation. The first consideration is an adequate intake of protein. The patients must be kept in nitrogen equilibrium. The daily nitrogen output is determined principally by the amount of active tissue of the body, which is represented approximately by the ideal weight of the patient and without regard to the fat deposits. It has been shown that the nitrogen output is approximately 0.16 Gm. per kilogram of ideal weight. This output may therefore be covered by the ingestion of an equivalent amount of food protein or 1 Gm. per kilogram of ideal weight.

An important fraction of the normal caloric intake is supplied by carbohydrate foods. For a minimum caloric diet this factor should be as low as possible. If, however, the diet consists only of protein and its inseparable fat, it is impossible to keep patients in nitrogen equilibrium on a protein intake of 1 Gm. per kilogram, because, in addition to the intrinsic nitrogen metabolism, an appreciable amount of protein is diverted for its antiketogenic properties. For this reason some carbohydrate must be given, not to avoid acidosis but to function as a protein-sparing food and prevent nitrogen loss. After long periods of observation, the amount of carbohydrate which has been determined as adequate at this nitrogen level is 0.6 Gm. of carbohydrate for every gram of protein.[2]

No fat was given in the diet other than that inseparable from the protein ration. Menus containing as little as 9 Gm. a day were employed. The maximum possible influence on the caloric balance was thus secured.

An adequate daily supply of inorganic salts is of great importance. The necessary anions and cations are provided in Tyrode's solution that is made without dextrose.

Since it is necessary to continue these diets for long periods, thought must be given to the vitamin content. The assumption that human fat, as other animal fat, stored the fat soluble vitamins was considered reasonable at first. It has been found desirable to employ supplementary daily doses of viosterol and occasionally whole milk. The remaining vitamins were adequately supplied by the carbohydrate ration in which the 5 per cent vegetables were largely used together with small quantities of growing yeast, orange juice and milk.

With the limiting factors previously described in mind, menus were planned which included 1 Gm. of protein and 0.6 Gm. of carbohydrate per kilogram of ideal weight. Theoretically, such menus represent the minimal possible food intake. Practically, the diets supplied a total of only 400 to 600 calories a day. Nevertheless, the patients were kept in nitrogen equilibrium, had no acidosis, and did not suffer a lack of inorganic salts or vitamins.

As stated, fat is burned and weight is lost in proportion to the difference between the energy expended and the energy taken in. The minimal intake has been described as from 400 to 600 calories. The total expenditure of energy is, however, not easily demonstrable at the present moment. Obviously, the basal calories are used. In practice, a rough approximation, basal calories plus 20 per cent, has been used as a very conservative estimate of the total caloric output. The basal calories of the majority of our moderately obese patients were over 1,600 calories. Excessively obese persons had basal levels of from 2,200 to 2,400 calories. It is very conservative, therefore, to estimate total outputs of from 1,900 to 2,900 calories a day. The caloric deficits which may be secured therefore range from 1,500 to 2,500 calories a day. The weights of fatty tissue which correspond to such deficits are from 185 to 300 Gm. a day. In other words, after a week of rigid dieting the expected weight change can only be from 2½ to 4½ pounds of true tissue loss apart

* From the Department of Medicine, Western Pennsylvania Hospital.
* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

1. Strang, J. M., and Evans, F. A.: The Energy Exchange in Obesity, J. Clin. Investigation **6**: 277 (Oct.) 1928. Strang, J. M.; McClugage, H. B., and Evans, F. A.: The Nitrogen Balance During Dietary Correction of Obesity, Am. J. M. Sc. **181**: 336 (March) 1931. McClugage, H. B.; Booth, George; and Evans, F. A.: Creatinine Excretion in Abnormal States of Nutrition, ibid. **349** (March) 1931.

2. Strang, J. M.; McClugage, H. B., and Evans, F. A.: Further Studies in the Dietary Correction of Obesity, Am. J. M. Sc. **179**: 687 (May) 1930.

from water shifts. The large weight changes so often observed at the outset of a dietary program are chiefly water shifts for which compensation is inevitable weeks or months later.

The menu that has been described indicates the amounts of protein, carbohydrate and fat which were actually ingested. It is obvious, however, that the substances that were actually metabolized were quite different. At the outset the body reserves of stored protein and carbohydrate were used as well as the fat. After the first few weeks, however, nitrogen equilibrium was established and the carbohydrate stores were exhausted. The caloric deficit was then supplied entirely by fat in quantities of from 150 to 300 Gm. a day.

The metabolism of a mixture so high in fat raised the specter of acidosis. At the lowest estimates of fat tissue loss, the theoretical ketogenic-antiketogenic ratios were over 2 to 1 and in the majority the theoretical ratios were 3 to 1 or over. In spite of such formidable ratios the patients showed only transient ketonuria, but in none was it persistent and never was there evidence of acidosis. The absence of acidosis was demonstrated even in the early series of patients who were fed for long periods on little else than their protein requirements. One such patient may be described to illustrate this point:

During the second four weeks of dieting, Miss A. reduced from 158.4 to 148.4 Kg., 10 Kg. or 0.360 Kg. a day.[3] There was an average daily loss of 0.4 Gm. of nitrogen, which was equivalent to 12 Gm. of protein tissue. The remaining 348 Gm. of daily weight loss may be regarded as fatty tissue. The protein tissue and fatty tissue losses were equivalent to 2.5 Gm. of protein and 303 Gm. of fat, respectively. The diet given during this period consisted of carbohydrate 8 Gm., protein 50.5 Gm., and fat 7 Gm. The materials oxidized, however, were carbohydrate 8 Gm., protein 53 Gm., and fat 310 Gm., with a ketogenic-antiketogenic ratio of 4.3 to 1,[4] yet she showed no ketonuria and several plasma carbon dioxide determinations were within normal limits. These observations show that acidosis is a factor that need not be considered.

CLINICAL APPLICATIONS OF THE DIET

Low caloric diets have been used in the routine treatment of 187 obese patients. These 187 patients lost 5,659 pounds, an average of 30 pounds (13.6 Kg.). The average duration of the dieting period was 8.7 weeks. The average weekly weight loss was 3.5 pounds. Practically all patients lost weight more rapidly during the first four weeks than later. The 133 patients for whom weight changes are available for this period lost an average of 16 pounds in this first month. Since the rate of weight loss is fundamentally determined by the difference between the intake and the output of energy, the course in any given case was influenced primarily by the fluctuations in energy output. The tendency for the basal metabolism to reduce to normal levels after from two to three months was an important factor in the relative slowing of the rate of progress after prolonged dieting.

The subjective changes which the patients reported constituted some of the most striking clinical results of the treatment. Contrary to their expectations, they were not weak and hungry. It was rare for a patient to complain of hunger after the first two or three days. In fact, one is astonished by the unanimity with which patients reported a return of vigor, a feeling of well being and resistance to fatigue which had been lost for months or even years. A great variety of obscure symptoms and minor ailments disappeared. Headaches, which afflicted so many of these patients, some even migrainous in type, were relieved in every instance, and usually within the first two weeks. Dyspnea and orthopnea diminished rapidly. Minor skin disorders were frequently relieved. Intertrigo disappeared or became easy to control in every case in which it was found. In one case, diagnosed epidermophytosis, and in another presenting such annoying pruritus vulvae that oxyuris infestation was seriously considered, complete relief was obtained in three and six weeks, respectively. The symptomatic improvement which all patients experienced far outran the rate of weight loss and was far greater than could be accounted for by the mechanical relief from a burden of from 5 to 10 pounds. Accompanying the disappearance of unpleasant symptoms, there was very frequently an additional return of *joie de vivre*. This factor was of real significance in girls of school and college age who not only found a relief from a social semiostracism on account of the excess weight but also were again able to wear clothes of a style proportionate to their years.

The objective changes appeared somewhat more slowly. Very striking changes in the circulatory apparatus were among the first to appear. The rapid depression of elevated blood pressures was one of the commonest and earliest signs. Changes in the skin were always noted when any large loss of weight was secured. There was a certain amount of flabbiness resulting from the removal of the subcutaneous fat from beneath a grossly overstretched skin. With the passage of time the elasticity of the skin was largely restored but with the appearance of the characteristic striae. However, this loose skin was encountered only in the areas over the great fat depots such as the abdomen, the thighs, the buttocks and, to a less extent, the breasts and shoulder girdle, parts which are usually not exposed. On the exposed surfaces, such as the face and the forearms, the skin changes were of quite different character. A caution was given to approximately the first twenty-five patients with reference to the possible development on the face of wrinkles and the classic "drawn expression." It is now no longer given because it was found unnecessary. Except for an occasional deepening of the nasolabial fold and a flabbiness of the neck resulting from the removal of a "double chin," no wrinkles developed. The "drawn expression" was never seen. These patients looked better and younger because of a clearer skin and more animated expression. It is felt that the wrinkling and drawn expression of the face which are so often described are due to starvation, dehydration or other physiologic strains and not primarily to the removal of the subcutaneous fat of the face.

In the series of patients that has been described, there were 26 men and 161 women. The treatment is obviously equally applicable to the two sexes. On the whole, the men respond more rapidly than the women. This fact is quite in accord with the expectation in view of the higher energy expenditure in men.

Adolescents and the elderly, who are thought to bear reduction measures poorly, were treated in this series as all other patients. A girl, aged 12 years, was

3. Probable true body weights corrected for possible water shifts.
4. On the basis of these figures, the patient was metabolizing 3,133 calories a day. The average basal calories for the period were 2,113. The total metabolism would be, therefore, basal plus 48 per cent. If the method of estimation of true body weight has not eliminated the possible errors from swings in water balance, the estimation of body fat lost may be too high and likewise the ratio 4.3 may be too high. However, if the caloric output is calculated on the basis of basal calories alone, the metabolic mixture has a ratio of 3.3 to 1. The actual ratio must be higher than 3.3 and is probably close to 4.3.

reduced from 208½ to 164½ pounds, 44 pounds in twenty weeks, with nothing but marked improvement in her physical and mental equipment. Another girl, aged 16 years, was reduced from 223 to 143 pounds, 80 pounds in twenty weeks. She not only improved mentally and physically but a dysmenorrhea of three years' standing disappeared and has not returned in three years. At the other extreme of life, a woman, aged 67, came into the office walking with great difficulty. She was having from 15 to 18 extrasystoles a minute and her blood pressure was 240 systolic and 110 diastolic. She was reduced from 278 to 182 pounds, 96 pounds in twenty-four weeks, an average of 4 pounds a week. After the first two weeks, her extrasystoles disappeared. Her blood pressure after four weeks of dieting was 135 systolic and 80 diastolic, and for the two years after, when it was followed, it did not go over 150 mm. After four weeks, she began doing housework and marketing with ease and comfort. This age range, 12 to 67 years, would seem to cast doubt on adolescence and senescence as contraindications to the reducing treatment if sound metabolic principles are followed.

Although some of the women patients had passed the menopause, many were in the age period of active menstruation. More than half of these women admitted on direct questioning a scantiness of the menses and more than ordinary discomfort. All but a very few reported a more abundant flow and less discomfort after weight reduction. In twenty or more the preexisting dysmenorrhea and its improvement after dieting was so marked that the facts were volunteered without direct questioning. Some cases were very striking. For example, a woman, aged 23, began to menstruate at the age of 14 and continued regularly and comfortably for eight years until she was 22. At 18, she weighed 150 pounds and gained 50 pounds in the next four years. Then her menses, after having been normal for eight years, during the last four years of which there had been a rapid weight gain, stopped completely. In the next year she gained 59 pounds and presented herself weighing 259 pounds and having missed eleven menstrual periods. Menstruation began after one week of dieting and, in the next twenty-six weeks, while being reduced 83 pounds, she menstruated six times. The periods were somewhat irregular but did not cause discomfort. Observations of this character suggest that excess weight and menstrual disorders are not the result of a primary endocrine imbalance, as is frequently supposed. On the contrary, the menstrual disorder, which is the principal index of the alleged endocrine imbalance, is probably due to a faulty nutrition with its inevitable resultant faulty metabolism at a physiologically impressionable period of the patient's life.

All patients were thoroughly examined for contraindications before treatment was undertaken. No doubt a tuberculous lesion would be a contraindication to dieting of this character, but the list of other reasons has been growing smaller as experience increases. Patients with myocardial lesions are supposedly poor subjects for reduction and they probably are. Among our patients there were eight with definite evidences of myocardial damage and many with symptoms, such as dyspnea, swelling of the feet and palpitation suggesting minor grades of myocardial insufficiency. These patients were dieted exactly as the others and, with one exception, the results were just as gratifying. The exception was a case, shown after six months of dieting, to be complicated by a psychopathic lesion leading to moral turpitude for which he was confined. A large number of diabetic cases of the obese senile type have entirely cleared up by this form of dieting alone.[5]

A few obese patients with advanced cardiovascular-renal disease have been kept on similar diets under hospital conditions. There was definite symptomatic improvement in these cases but probably no appreciable influence on the prognosis. There have been no disasters or even minor misfortunes. The conception has developed that, regardless of the type of handicap from which a patient suffers, the more nearly the physiologic load approaches that for which the particular body was designed, the better he will be able to cope with his disability.

INTERPRETATION OF RESULTS FROM BACKGROUND OF METABOLIC STUDIES

The very satisfactory clinical results that have been obtained in these cases were as surprising as they were gratifying in view of some of the popular ideas with reference to the necessity for moderation in dietary restrictions and for slow rates of reduction. Certain metabolic studies that have been carried out on limited groups of patients seem to afford partial explanations for the excellent results.

Since the work of Chittenden, it has been recognized that patients can be kept in nitrogen equilibrium on minimal amounts of protein only if sufficient fuel food other than protein is given. A series of five patients whose average weight was 157.5 Kg. was given a maintenance diet for this weight consisting of 69 Gm. of protein, 235 Gm. of carbohydrate, and 128 Gm. of fat, a total of 2,403 calories. This represented 1.1 Gm. of protein per kilogram for the ideal weight, but only 0.4 Gm. for the actual weight. They remained in nitrogen equilibrium at a level represented by 0.16 Gm. of nitrogen output per kilogram of ideal weight. The reducing diet for them was 59 Gm. of protein, 10 Gm. of carbohydrate and 7 Gm. of fat, a total of 335 calories. On this there was a slow nitrogen loss, averaging for the group 2 Gm. over five and one-half weeks. In spite of this nitrogen loss there was no depression of the level of nitrogen metabolism, it being maintained at a level represented by 0.17 Gm. of nitrogen output per kilogram of ideal weight.[6] The addition of only 20 Gm. of carbohydrate, making a total of 0.3 to 0.5 Gm. for each gram of protein and a total caloric intake of 445, brought these patients into nitrogen equilibrium at a level represented by 0.15 Gm. of nitrogen output per kilogram of ideal weight. This level apparently could be maintained indefinitely in one patient; one patient reduced 67.1 Kg., for a period of 260 days. The absence of depression of nitrogen metabolism shown by these patients with an intake of 0.5 Gm. of protein per kilogram of their actual weight, and their ability to maintain nitrogen equilibrium on this protein intake with an additional fuel intake of 29 Gm. of carbohydrate and 9 Gm. of fat, a total caloric intake of 445, is in striking contrast with the normal series of Beard,[7] and Denis and Borgstrom,[8] and the series of Benedict.[9] This finding suggests that vital starvation tissues have not been wasted and fits in well with the feeling of well being observed clinically in a long series of these patients.

5. The dextrose equivalents of these diets range from 70 to 75.
6. Strang, McClugage and Evans (footnote 1).
7. Beard, H. H.: Protein Intake of Medical Students, Am. J. Physiol. **82**: 377 (Nov.) 1927.
8. Denis, W., and Borgstrom, P.: A Study of the Effect of Temperature on Protein Intake, J. Biol. Chem. **61**: 109 (Aug.) 1924.
9. Benedict, F. G.; Miles, W. R.; Roth, P., and Smith, H. M.: Human Vitality and Efficiency Under Prolonged Restricted Diet, Pub. 280, Carnegie Institution of Washington, 1919.

The oxygen exchange in obese patients is, on the average, approximately 25 per cent greater than in persons of normal weight. An example of this phenomenon was previously described. It may again be stressed that the degree of excess metabolism is not apparent in the usual form of expression of basal metabolic rate. If the total calories per hour are considered or if the metabolic rate is calculated with regard to the ideal weight of the patient, the high level is at once appreciated. The oxygen exchange on five obese patients who averaged 94 pounds overweight, when calculated by the Du Bois formula showed basal metabolic rates within the limits of normal, minus 3 per cent. The calories per hour for these patients averaged 71.[10] If these patients had been of normal weight, the calories per hour giving a normal basal metabolic rate would have been 58. Calculating their actual calories per hour on the basis of the ideal instead of the actual weight, the basal metabolic rate would have been plus 23 per cent. This represented a metabolic rate associated with several symptoms, certainly easy fatigability. On dieting according to the principles mentioned, the average calories per hour were reduced to 61. This, calculated on their average ideal weight, yielded a basal metabolic rate of plus 6. In regard to this diminution in the level of metabolism during the course of dieting, two important observations must be made. First, the rate at which the level of metabolism dropped was much faster than the rate at which weight diminished. Second, the metabolic level diminished rapidly at first and then more gradually as it approached the level at which the individual should operate under ideal conditions. Regardless of the duration of the dietary period, it rarely went below this limiting value. These facts may perhaps be associated with certain clinical manifestations. The initial high level of metabolism was probably related to the relative circulatory insufficiency of many patients as well as to their relatively poor response to various types of additional physiologic strain. They were merely existing under physiologic loads which required the constant use of a large fraction of the normal reserve capacities. After but two or three weeks of dieting, practically all patients reported a marked increase in functional capacity. The actual and relative weight losses were quite insufficient to explain this uniform phenomenon. It was felt that these sensations were related rather to the relatively sharp drop in metabolic level with a consequent reduction in physiologic load. A further point of great practical importance was associated with the diminution of metabolic level; namely, the inevitable decrease in rate of weight loss. In the early weeks of dieting, patients had great enthusiasm as they watched numbers of pounds drop off. As the rate of loss became less, the patients wanted to know why this should occur in spite of adherence to the same diet.

The distribution and temporary storage of water are phenomena of great importance in normal individuals. In obese persons the normal storage capacity is greatly increased owing to the great capacity of fat tissue for water storage. During periods of rapid fat tissue loss, the spontaneous alterations in this storage capacity that normally occur were greatly exaggerated and reached a considerable magnitude. Although our own data bearing on this phenomenon have not yet been compiled, reference may be made to the studies of Newburgh which deal with this point. In the early days of dieting the tissue loss was accompanied by the dumping of stored water. Great weight losses were noticed on the scale. Subsequently this water was replaced in part or in toto. Thus, although the food intake remained restricted, the patient might fail to lose or might even gain weight. Eventually, however, another period of water elimination occurred with a sharp weight change. These cycles of water shift became more conspicuous as the dieting period increased. All the closely studied patients exhibited this phenomenon to an exaggerated degree after the third month. It must be emphasized, however, that the loss of fat continued according to schedule regardless of these water shifts. An appreciation of the magnitude of this phenomenon is essential. The failure to understand these water shifts is probably responsible for the discouragement of a large number of patients after two or three months of dieting and also for the impressions of many persons that it is possible to hold weight or gain weight on low caloric intakes.

The index of creatinine excretion of Folin [11] modified by Shaffer [12] and called the creatinine coefficient has been suggested as a measure of muscle mass. This coefficient determined on five obese patients, figured on the average actual weight, was 3.4, indicating a deficiency of muscle mass. Figured on the average ideal weight it was 6.7, a normal figure. These five obese patients, maintained for many weeks on the reduction diet of 59 Gm. of protein, 10 Gm. of carbohydrate, and 7 Gm. of fat, a total of 335 calories, showed, on determinations over this period during reduction and after, no variation in the excretion of creatinine.[13] This indicates that the excess weight of the obese is inactive fatty tissue and that by this dietary reduction the muscle mass is not diminished. In the undernourished the creatinine coefficient is low. Five underweight patients gave an average creatinine coefficient of 5.8, a figure below normal. This depression became even more marked, a creatinine coefficient of 4.4, when calculated for the ideal weight. During dietary correction the index of creatinine excretion increased with the weight up to a certain point. Beyond this it remained stationary, because the increase in weight was then in adipose tissue alone. This shows that, in real starvation, muscle mass, as evidenced by the index of creatinine excretion, is lost. It further suggests that the five obese patients losing an average of $77\frac{7}{10}$ pounds in twenty weeks on a daily intake of less than 450 calories, who showed no change in the creatinine index, were not being starved.

DuBois,[14] and Strang and McClugage [15] have shown that the rise in total caloric output in response to a fixed meal, the specific dynamic action of the meal, was quantitively the same in the obese and in normal persons. Strang and McClugage also presented evidence that the feeling of satiation after food may be related to the attainment of an optimum rate of change of metabolism in consequence of the rate at which this extra heat is produced. It is well known that protein foods produce the most intense heat of reaction. The relative preponderance of protein in the food supplied by these diets, but more especially the use of normal amounts of protein, insures an intensity of specific dynamic action which approaches the optimum rate of change of metab-

10. Strang and Evans (footnote 1).

11. Folin, Otto: Laws Governing the Chemical Composition of Urine, Am. J. Physiol. **13**: 66, 1905.

12. Shaffer, P. A.: The Excretion of Creatinine and Creatine in Health and Disease, Am. J. Physiol. **23**: 1, 1908.

13. McClugage, Booth and Evans (footnote 1).

14. Du Bois, E. F.: Recent Advances in the Study of Basal Metabolism, J. Nutrition **3**: 217 (Sept.) 1930.

15. Strang, J. M., and McClugage, H. B.: The Specific Dynamic Action of Food in Abnormal States of Nutrition, Am. J. M. Sc. **182**: 49 (July) 1931.

olism. It is quite possible that the absence of hunger and the feeling of contentment with the food given to patients undergoing treatment were related to these specific dynamic phenomena.

These attempts to correlate variations in clinical symptoms with the carefully determined laboratory data are admittedly subject to certain criticism. The interpretations are to be regarded as tentative only and subject to revision or complete retraction when new or conflicting evidence appears.

WEIGHT REDUCTION BY INCREASE OF ENERGY OUTPUT

The method of weight reduction that has been described is primarily concerned with the reduction of the daily intake of energy. It must be recognized that an increase in total energy output will also promote a caloric deficit. Measures to this end are of two classes: those which increase the extrabasal calories, and those which increase the basal energy exchange.

The extrabasal energy output is increased most commonly by systematic exercise or useful physical work. It is obvious that there are distinct limitations to the effect on the total daily output which may be thus obtained. Except in employments involving severe manual labor, the total extrabasal calories rarely exceed the basal calories. Of these extra calories an appreciable fraction represents the energy utilized in the routine of existing and but a relatively small proportion represents useful work or what would be recognized as physical labor. In order to secure a real caloric loss, such as from 300 to 400 calories, some form of genuine work carried out over a significant period of time is essential. Simple spiritless routine exercises are beneficial as mental and circulatory stimulants and perhaps have an influence on muscle tone. They cannot, as usually performed, have a significant caloric equivalent. Unfortunately, these procedures stimulate the appetite with the result that the subsequent excess food intake far exceeds any slight deficit which might have been produced. Practically, however, the attainment of adequate caloric deficits by these means is quite out of the question. Obese persons at rest have high rates of metabolism. The performance of the simple exertions of existence makes serious inroads on their reserve capacities. The circulatory apparatus in particular has been subject to years of chronic strain and its impending exhaustion is only too frequently the reason for the desire to lose weight. The persons who most require rapid weight reduction are the very ones in whom an increase of output of significant degree is accompanied by very real danger.

The agents that may increase the energy expenditure by elevation of the basal metabolic rate are distinctly more popular. Thyroid is the most common substance in actual use. An important reason for the high regard for this method of treatment is that patients may "take the cure" with but slight interference with the very pleasant habits of life which produced the obese state. Unquestionably, weight loss can be secured by an elevation of the total energy output but, exactly as in the first class of agents, a reasonable rate of weight loss requires a strict limitation of intake in addition to the use of the drug. Thyroid is a powerful drug, one of whose actions is the increase in the general level of metabolism already too high in the obese.

From what has gone before, it will be apparent that, in our opinion, the use of this agent is irrational even when not positively dangerous. A further increase of metabolism and especially the basal fraction makes additional inroads on the physiologic reserves just for the purpose of existence and seriously limits the balance available for the necessary activities of life, and the margin of safety for true physiologic crises. In addition to its effect on oxygen exchange, thyroid extract produces a marked increase in nitrogen metabolism. The nitrogen elimination is increased distinctly as long as any storage protein remains. The ultimate result of a further use may be regarded as still unsettled.

The symptomatic improvement which our dietary patients experienced was described in considerable detail. The definite increase in vigor which appeared within a few days was regarded as associated with the comparatively rapid drop in level of basal metabolism whereby less of the physiologic reserves were required for mere maintenance. The absence of the characteristic phenomena of starvation were considered in respect to the maintenance of the normal nitrogen metabolism. The absence of hunger was regarded as perhaps related to the persistence of an approximately normal level of metabolism such that the specific dynamic action of the food employed produced a rate of change of metabolism adequate for satiety. Any reduction treatment requires long periods of time. The more conspicuous the symptomatic improvements and the more comfortable the patient, the longer he will persist. The restoration of a metabolism which is quantitatively and qualitively approximately normal is an important factor in this respect. Therefore, it is strongly felt that, by the use of thyroid, these very important desiderata are jeopardized while at the same time a not too significant increase in rate of weight loss is secured.

Although in our opinion the routine use of thyroid for reduction is to be condemned, thyroid does have a definite place. Of the nearly 200 patients so far treated, 4 patients, roughly 2 per cent of the total, were given thyroid. It has been found that obese patients whose initial metabolic level is not greatly above normal may depress these levels after a few weeks of dieting to the lower limits of normal. These patients are either young excessively healthy persons or persons who have been confined to bed for months prior to beginning treatment. In these cases weight loss and symptomatic improvement continue by diet alone but, in view of the low total energy output, the caloric deficit is small. The rate of weight loss is therefore also small, a pound a week. Very few patients have the moral stamina to adhere to a rigid diet when the scales show a loss of only 4 pounds a month. In these cases, also, the body is operating with but slight demands on the physiologic reserves. Only sufficient thyroid is given to elevate the metabolic level to normal or slightly above. The use of thyroid is therefore not primarily dangerous and the increase in rate of weight loss promotes satisfaction in the patient. One woman, aged 49, who weighed 259 pounds, was first seen after three months in bed because of another disability. Her basal calories per hour were 59 with a basal metabolic rate of minus 26 for her actual weight and minus 8 for her ideal weight. After four weeks of dieting, the calories per hour were 54 with a basal rate of minus 34 for actual weight and minus 18 for ideal weight. Enough thyroid extract was given to elevate and maintain the total calories per hour at 67 to 70. The diet was not changed. The increase in rate of weight loss greatly improved the cooperation of the patient.

These patients perhaps had hypothyroid tendencies. However, they presented no clinical evidence of diag-

nostic value. Furthermore, the laboratory data prove them to have been within normal limits according to the criteria employed. These facts are important in suggesting that there is no clinical evidence by which the rare patient in whom thyroid medication may be used to advantage may be, at the outset, picked out from the large group in which it is contraindicated. Only after a period of dietary treatment, during which the rate of weight loss has diminished until it becomes no longer practical and during which the basal metabolism has fallen to and remained at the low limits of normal, should thyroid be used. It may then be given to supplement the diet under careful supervision with frequent checks of metabolic level and only in amounts sufficient to maintain a normal metabolism.

SUMMARY

1. The excess weight of the obese is inactive storage tissue.

2. The level of oxygen exchange in the obese is high when related to the ideal weight, which is a measure of the actively functioning body tissue.

3. Diets containing 1 Gm. of protein and 0.6 Gm. of carbohydrate per kilogram of ideal weight and no fat, other than that inseparable from the protein ration, afford menus of from 400 to 600 calories on which these patients lose weight rapidly.

4. The patients are not hungry. They report an increased feeling of well being and resistance to fatigue. Headaches, minor disorders and frequently dysmenorrhea are relieved early in the period of dieting.

5. The satisfactory clinical results are obtained because only the inactive excess fatty tissue is being removed. The vital tissues are not wasted as in starvation, as shown by careful studies of oxygen, nitrogen and creatinine metabolism.

6. Because of the physiologic strain which obesity throws on the organism, one evidence of which is the high level of basal metabolism, thyroid extract and other agents which increase the total energy output are contraindicated.

7. A few patients, perhaps not over 2 per cent, do not lose weight with practical rapidity by diet alone. These patients cannot be differentiated from the others by history or physical examination. They may be recognized with assurance by careful observations of the rate of weight loss and of the basal metabolism during a period of dieting. In these patients, carefully regulated doses of thyroid are beneficial in conjunction with dietary treatment.

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ABSTRACT OF DISCUSSION

Dr. Henry J. Spencer, New York: With regard to the relationship of the protein intake to the weight of the active body tissue I have found substantially what the authors report. On maintenance diets I found that the protein utilized was about 0.8 Gm. per kilogram of ideal body weight. If then the diet was changed to a submaintenance, low calory diet of about 750 calories daily the protein utilization rose to about 1.1 Gm. per kilogram, an increase of about 40 per cent. Under the latter regimen about 0.2 Kg. of weight was lost daily. I would warn against an undersupply of protein. To my mind this is a real danger. Most obese persons largely eschew protein even when the diet is reduced and they must be distinctly directed to take it. Practically applied, the figures which I have given mean 7 ounces a day of lean meat for maintenance diets and 10 ounces for the 750 calory diet for the average overweight individual. In 1929 Du Bois, McClellan and Spencer reported on the specific dynamic action of protein in obese individuals, which was found the same as for persons of normal weight. I consider this property of protein valuable for practical use in the reduction of weight. Carbohydrate is more efficient than fat in sparing protein. I found no optimal point in the carbohydrate-protein ratio while working with ratios ranging from 0.25 to 1 up to 4 to 1. My reducing diets contain from 0.25 to 0.6 Gm. of carbohydrate to 1 Gm. of protein. I can add nothing to, could only cite similar instances of, what the authors have to say regarding the relief of amenorrhea and the host of minor complaints such as headaches, backaches and sleeplessness. I shall only repeat what I said elsewhere about five years ago, that vascular changes may have advanced to the irreversible point and then treatment can only retard this advance. During treatment the transient period of high fat metabolism is unavoidable and can in no wise be worse than the antecedent state of obesity and leads to a far better state of affairs.

Dr. Burgess L. Gordon, Philadelphia: It is interesting to note in these studies that there is present in obesity a high level of oxygen exchange as related to the ideal weight of the patient. Stated in another way, it is possible, so far as useful tissue is concerned, that potential if not actual thyrotoxic phenomena are present. This should set at rest the impression that decreased functioning of the thyroid is a factor in obesity and emphasize the danger and perhaps havoc that may occur in promiscuous administration of thyroid preparations. It is interesting to note also that striking results were obtained in the use of low calory diets. I am wondering whether these could be obtained as easily in the majority of obese individuals of the average clinic population. This question is raised because in the experiences in the nutrition clinic at the Jefferson Hospital it has been difficult to reduce considerably the caloric intake. The temperament of our patients, their associations, their natural love for food and leisure are not conducive to rigid food restriction. Furthermore, weakness, fatigue, nervousness and hunger, of which they complain, frequently add further difficulties in treatment. For this reason a regimen consisting of a moderate reduction in the intake of starch (about one half of the usual intake for the given patient) maintaining essentially the same protein figure as the authors have suggested, but without change in the fat ratio, and the administration of small amounts of readily available carbohydrate between meals has been used. A satisfactory loss of weight has been obtained in the majority of patients. It is assumed that the reduction of starch is sufficient to favor loss of weight, the carbohydrate administered between meals being utilized largely to provide immediate energy and relieve symptoms. In general the exact regimen that may be employed is largely a matter of preference. The important points, as the authors emphasize, are that patients may lose weight comfortably on low caloric diets and that the thyroid is not the usual contributing factor in overnutrition. Successful treatment depends essentially on careful study to rule out masked disease that may contraindicate loss of weight, fair and helpful cooperation of the patient, and the selection of a diet that will not induce rapid loss of weight (more than 1 to 2 Kg. weekly) or decrease markedly the intake of important food constituents.

Dr. J. S. McLester, Birmingham, Ala.: The authors have almost convinced me—but not entirely. I am sure their theoretical considerations are sound, but there are two reasons why their very low calory diets have seemed to me to be inadvisable. First, the person who attempts this type of diet is apt, in my experience, to become weak and easily exhausted; he may grow wrinkled and old in appearance. And second, of great importance in the reduction cure is the patient's education. The object of treatment is not solely to reduce the weight but also to inculcate new tastes and habits. The appetite and tastes of the obese person are as a rule perverted, and he eats too much. It has been found, however, that if such a person restricts himself to a limited, well balanced diet, he will in time experience a revision of his tastes and appetite so that in the end he is permanently content with a smaller amount of food. With this object in view, then, the ideal reduction diet should be one which, in its composition and to some extent in its total caloric value, approximates the regimen on which the patient should live the rest of his life. It should not be unusual in composition, nor

should it be too drastic. It has seemed to me that with the slower tempo the results are more permanent. It must be admitted, however, that the proof of the pudding is the eating, and the authors have achieved admirable results.

DR. FRANK A. EVANS, Pittsburgh: It is true that one of the most important parts of this method is obtaining cooperation by the patient, and in one of my earlier publications I said that one handles these patients more firmly than he would perhaps care to handle all one's private patients. There are a good many people who are overweight who need or want reduction, who have been in the habit of getting what they want without any great effort. Some of those people, if one takes time to explain what it means, what they have to do, will drop out. Of those who stay on the diet two weeks the wastage is very small. By that time their hunger is gone and they feel so much better that one cannot get most them to quit. Dr. McLester also said something about reeducation in dietary habits. It is an important factor. Dr. Gordon, as is well known, has administered carbohydrate at periods during the day when reserves are lowest. That, of course, works. If one gives carbohydrate at those periods, as outlined by Dr. Gordon, and as we have done, but not in this series, the patients come down, but not as well, because the calories are up a little. We have found that appetite and hunger can be controlled perfectly well by plain water. Dispensary patients, as Dr. Gordon mentions, are not fit material for this type of work. They either do not have intelligence to understand or the character to carry it through. All in our larger series were office patients, doing their regular work, doing their own cooking, or having it done in their own homes. The experimental work, of course, was done under controlled conditions in the metabolic pavilion of the hospital; but these patients are not included in the long series because with the several different technics employed with them it would have lengthened the discussion.

EXPERIENCES WITH PERIARTERIAL SYMPATHECTOMY IN FRACTURES OF THE LOWER EXTREMITY*

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One of the greatest practical problems in industry is the speedy rehabilitation and economic restoration of the injured. Accidents resulting in fractures of bones have always exacted a heavy toll in temporary total disability, and when these fractures are complicated by delayed union and nonunion the loss in working days and the attendant dire consequences become greatly increased.

Although the clinical measures which should insure and promote the solid union of fractured bones are becoming more and more standardized, nevertheless instances of delayed union and nonunion do unfortunately occur. These, in addition to being due to many obscure causes, may be the result of either improper treatment, local mechanical interference or insufficient local reaction about the bone fragments.

One of the fundamental factors in osteogenesis is an adequate and liberal supply of blood. Lacey [1] has recently again stressed its importance. Therapeutic measures which should produce and promote a good blood supply in fractures have always been strongly emphasized. These found their earliest expression in the passive hyperemic treatment advocated by Hilgeneiner,[2] Bier [2] and others, and today consist of the immediate institution of radiant heat and gentle massage whenever practical. These means certainly stimulate and increase the variable hyperemic phenomena normally present in all fractures, for active vascular congestion and extravasation are essential in preparing a fertile field for good callus formation.

Leriche [3] has shown that following any trauma a reflex vasoconstriction occurs which after a variable time is followed by a dilatation of the neighboring vascular system. This hyperemia which is reflexly produced can be further increased and abetted by a periarterial sympathectomy.

While this operation has been criticized by some as incomplete and transitory and by others as being ineffectual, the fact remains that following a proper application of this procedure a definite train of physical changes occur. After the adventitia has been thoroughly removed from the vessel wall, the primary contraction of the arterial tree is followed within a few hours by a vasodilatation and a marked hyperemia. The resulting increase in blood pressure, skin temperature and vascular tonus have been shown to remain for an appreciable length of time.

If periarterial sympathectomy offers the possibility of producing an active hyperemia with all that it supplies, then this procedure should have a logical application in the treatment of certain groups and types of fractures.

Uffreduzzi [4] conducted a series of experiments in young rabbits in which the ulnas were simultaneously fractured and on one side a periarterial sympathectomy was performed. Roentgenologic and histologic examinations were made from the sixth to the fiftieth day to determine the extent of the processes of repair. It was definitely established that the periarterial sympathectic decortication exercised a distinct stimulating influence on new bone formation. The normal rate of development was accelerated, and the period necessary for firm union was materially shortened. Colle and Pecco [5] and Fontaine,[6] working along lines similar to those outlined by Uffreduzzi, practically corroborated his results. We, together with Kassaback, observed a series of dogs in which both tibias were fractured and a femoral periarterial sympathectomy was performed on one side. An increase in the vascularity and the callus formation on the sympathectomized side was noted by femoral arterial injections of iodized rape-seed oil and by roentgen examinations. These experimental data will be reported in detail elsewhere.

Palma [7] investigated a number of adult rabbits in which both radii were fractured and the lower ganglion of the cervical sympathetic was removed. He concluded after careful roentgen and tissue studies that an active hyperemia was produced especially in the region of the fracture and that the process of callus formation and transformation were accelerated on the ganglionectomized side. Other investigators [8] have reported similar findings. They have further stated that the excision of the sympathetic ganglion, which is certainly a more complete operation, is accompanied by better effects than that of periarterial neurectomy, which at best is an incomplete procedure. While this

* From the Surgical Service of the Beekman Street Hospital.
* Read before the Section on Orthopedic Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

1. Lacey, J. T.: Ann. Surg. 89: 813-847 (June) 1929.

2. Cited by Uffreduzzi (footnote 4).
3. Leriche, R.: Ann. Surg. 88: 449-469 (Sept.) 1928.
4. Uffreduzzi, O.: Arch. ed atti d. Soc. ital. di chir. 21: 1-130, 1924.
5. Colle, G., and Pecco, R.: Arch. ital. di chir. 21: 1-37, 1928.
6. Fontaine, R.: Rev. de chir. 64: 93-104, 1926.
7. Palma, R.: Ann. ital. di chir. 4: 83-103, 1925.
8. Uno: Arch. f. Japan. Chir. 3: 106, 1926. Horton, B. T., and Craig, W. M.: Proc. Staff Meet., Mayo Clin. 4: 240 (Aug. 7) 1929.

is undoubtedly true, ganglionectomy is much more hazardous, and it is extremely doubtful whether its application in fractures would be justifiable, since simpler measures have proved to be almost as efficacious.

The results of animal experimentation in general and on the vegetative nervous system in particular cannot be translated too freely into human terms, for their applications may not be similar. Still, sufficient clinical evidence reported by reliable observers has been accumulated to justify the further employment of periarterial sympathectomy in delayed union and nonunion fracture cases. This simple procedure cannot be considered a universal panacea. Not every case subjected to it has responded, but there is no remedy that will always guarantee solid union. A study of the case reports of Futh,[9] Rubaschow,[10] Fontaine,[4] Leriche,[3] Floresco,[11] Bressot,[12] Stropeni,[13] Gaudier [14] and others seems to bear witness to the efficacy of this operation in cases of delayed union and of nonunion.

Femoral periarterial sympathectomy was performed in seventeen selected lower extremity fractures in the surgical service of the Beekman Street Hospital.

TABLE 1.—*Cases of Recent Fractures*

Case Number	Diagnosis	Clinical Union	Days of Hospitalization
1*	Fracture right tibia and fibula, middle third	28 days	47
2*	Fracture left tibia and fibula, middle third	29 days	33
3*	Compound fracture right tibia and fibula, lower third	33 days	65
4*	Fracture right tibia and fibula, middle third	36 days	41
5*	Fracture right femur, lower third	33 days	70
6†	Fracture tibia and fibula, lower third	38 days	44
7‡	Compound fracture right tibia and fibula, lower third	27 days	112 (complicated by fracture of fourth lumbar vertebra)

* Periarterial sympathectomy performed from one to two hours after admission.
† Periarterial sympathectomy performed nine days after admission.
‡ Periarterial sympathectomy performed nineteen days after admission.

Thirteen involved the shafts of the tibia and fibula and four the distal half of the femur. Seven were recent fractures and ten were those in which the clinical course and the roentgen examinations pointed to a possible nonunion. The operation was done in fresh fractures (group 1) to determine whether callus formation could be hastened, and in fractures with delayed union (group 2) to ascertain whether callus formation and transformation could be stimulated.

Periarterial sympathectomy in fractures may be condemned by some as a radical procedure. But in this series neither untoward complications nor detrimental results followed its application. Naturally, femoral sympathectomy was done only on those patients who were considered good surgical risks and, whenever necessary, it was performed while the patient was in bed, with the fractured limb in traction and suspension.

The Leriche technic of periarterial sympathectomy was carefully followed, and the common femoral artery was adequately exposed in Scarpa's triangle. The beneficial effects following arterial decortication in this area are best observed in the increased blood supply to the leg, but the lower half of the thigh and the corresponding femoral shaft also share in this hyperemia. While usually it was not practical actually to measure the degree of hyperemia with the Pachon oscillometer and other instruments, because of the splints, it could always be rapidly appreciated within the course of a few hours after operation by the definite increase in the skin heat of the extremity on which operation had been performed.

The average period for clinical union in this group, with the exception of one case, a fractured femur, was thirty-six days, with a hospitalization of forty-seven days. Kennedy reviewed a series of similar fractures without sympathectomy, at the Beekman Street Hospital, and found clinical union in fifty days and an average hospitalization period of sixty-six days.

In table 1, it will be noted that in two cases periarterial sympathectomy was performed nine and nineteen days, respectively, after injury. As has been previously stated, the primary effect of any injury is a local vascular dilatation and increased circulation, which lasts from one to two weeks. Leriche, therefore, logically advises this procedure in fractures after the primary effect of the trauma begins to subside, at which time periarterial sympathectomy should prolong the local hyperemia. The average period of clinical union in these two cases was twenty days after sympathectomy and thirty-seven days after injury, which was approximately the same as in those cases in which operation was performed immediately after injury.

While clinical union was undoubtedly hastened by this procedure, examinations did not show that callus formation was accelerated. However, it is quite common to observe firm clinical union before callus is present roentgenographically. In this series of recent fractures of both bones of the leg, one patient showed callus at the time of discharge. The others were followed in the outpatient department, where further observations were too infrequent to establish the exact time of callus appearance; roentgen examination, however, revealed bony union in all cases at subsequent examinations.

Patient 5, aged 51, who presented fracture of the femur, showed good callus in twenty-four days and firm union in thirty-five days (table 1). Although this callus formation and union can be considered well within the lower normal limits, no deduction can be drawn from this solitary case.

This series is admittedly small, but certain facts are nevertheless interesting and suggestively significant. The sympathectomized cases of fracture of the tibia and fibula showed clinical union about eleven days sooner and were hospitalized nineteen days less than the control series, and no fracture showed a tendency to delayed union.

Group 2, which consisted of ten cases in which union did not occur, included seven cases of fracture of both bones of the leg and three cases of fracture of the distal half of the shaft of the femur (table 2).

The seven cases of fracture of the tibia and fibula disclosed no evidence of either beginning union or callus after an average period of seventy days. In the comparative series of similar fractures previously cited, the average period for beginning callus was forty-five days and for firm union forty-nine days. Therefore the cases herewith described might be considered instances of potentially delayed union.

9. Futh, A.: Ztschr. f. Chir. **32**: 308, 1925.
10. Rubaschow: Ztschr. f. Chir. **32**: 308, 1925.
11. Floresco, A.: Rev. d'orthop. **16**: 503-510 (Nov.) 1929.
12. Bressot, E.: Rev. de chir. **65**: 5-21, 1927.
13. Stropeni, L.: Arch. ital. di. chir. **15**: 661-672, 1926.
14. Gaudier, H.: Bull. et mém. Soc. nat. de chir. **53**: 959-960 (July 9) 1927.

In six of the seven cases of fracture of both bones of the leg, femoral periarterial sympathectomy was performed from 47 to 111 days after injury, because of false point of motion and absence of callus by roentgen examination. The remaining case (case 14) was an old malunited fracture of the distal third of the tibia and fibula. An open operation was performed to correct the deformity present, and, when union was absent ninety-three days later, a periarterial sympathectomy was done; union ensued eighteen days later.

Six of these seven cases showed evidence of firm union in from eighteen to twenty-nine days after femoral sympathectomy. In case 13, a compound fracture of the lower third of the tibia and fibula was still ununited when examined thirty-one months later. This case cannot be ascribed to the failure of periarterial sympathectomy. It was always suspected that nonunion was due to mechanical interference between the fragments, but this impression could not be confirmed because the patient persistently refused an open operation.

The results in the three cases of femoral fracture with delayed union may be briefly summarized. Periarterial femoral sympathectomy was performed in two cases; each fracture was ununited at the end of 270 days. In one (case 17), no effect was obtained, although open operation three months later disclosed fibrous union. In the other (case 16), a fracture complicated by chronic osteomyelitis, the roentgen films revealed callus thirteen days after sympathectomy and clinical union was firm in twenty-one days. Operation was performed in the third case (case 15) because of poor callus, which bowed under the strain when the patient was allowed up in a walking caliper three months after injury. Sympathectomy was performed 160 days after the original trauma, and 14 days later good callus and firm union were present.

TABLE 2.—*Cases of Delayed Union*

Case No.	Diagnosis	Reason for Sympathectomy	Time of Sympathectomy After Injury, Days	Clinical Union After Sympathectomy, Days
8	Fracture right tibia and fibula, lower third	1. False point of motion 2. Absence of callus	112	19
9	Fracture left tibia and fibula, middle third	1. False point of motion 2. Absence of callus	57	29
10	Compound fracture left tibia and fibula, lower third	1. False point of motion 2. Absence of callus	72	28
11	Fracture left tibia and fibula, lower third	1. False point of motion 2. Absence of callus	55	25
12	Fracture right tibia and fibula, lower third	1. False point of motion 2. Absence of callus	47	25
13	Compound fracture right tibia and fibula, lower third	1. False point of motion 2. Absence of callus	50	None
14	Malunion fracture left tibia and fibula, lower third	1. Osteoporosis distal fragment 2. Poor callus	93	18
15	Fracture shaft femur, lower third	1. Increasing bowing 2. Poor callus	144	14
16	Compound fracture lower third, left femur	1. False point of motion 2. Lack of callus 3. Osteoporosis	270	21
17	Fracture shaft lower third, left femur	1. False point of motion 2. Lack of callus	270	None

SUMMARY AND CONCLUSIONS

Periarterial sympathectomy seems to have a physiologic basis for application in the problem of fracture repair. In a series of seven recent fractures of the lower extremity there was a diminution of time in obtaining clinical union of eleven days, and in hospitalization of nineteen days, and no case showed a tendency toward delayed union. In a series of ten cases of delayed union in fractures of the lower extremity which were ununited after an average of seventy days, clinical union resulted twenty-one days after sympathectomy in eight cases.

The experimental and clinical evidence seems to justify a further trial of this operation in recent fractures and in those in which union appears to be delayed.

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ABSTRACT OF DISCUSSION

DR. H. WINNETT ORR, Lincoln, Neb.: I should like to have been told a little more thoroughly by the authors just what they employed in the way of splint methods. In this section particularly one is anxious to divide credit with any other method of treating fractures, adequate orthopedic measures as well. Without knowing otherwise just what happened in these cases, I should assume that good splint methods had been employed and would be inclined to give some of the credit to orthopedic methods as well as surgical methods. I am not ready to subscribe to this operation generally in the primary treatment of fractures. The operation is not, as the authors say, particularly difficult to do. There are certainly operative risks that should always be taken into consideration, and they particularly specify, of course, that this operation is not being recommended for general use in all fractures. At the same time they have made a fairly wide use of the operation and with gratifying results. Here is an operation which has shown decided value and which I think may be recommended in certain cases, particularly of delayed union, and which under proper conditions of the patient and otherwise I shall be disposed to employ. My own experience with periarterial sympathectomy has been satisfactory. I have not done it many times, but I did it three times in one patient, a man with Raynaud's disease and complicating foot lesions with a great deal of pain and disturbance of circulation. This man, who had had a popliteal arterial sympathectomy done in one leg, was so much relieved that he came back within two weeks to have it done in the other leg. Having had such a good result, I did a femoral sympathectomy on the second leg and the patient recovered and disappeared for three years. Then, because of recurrence of pain, he came back and had a popliteal sympathectomy on the same leg in which the femoral sympathectomy had been done before and got decided relief. To the general conclusions suggested by the authors I subscribe quite cheerfully, with the caution that in fresh fractures this operation should be reserved for special and particular cases.

DR. EDWIN W. RYERSON, Chicago: In considering this well designed and well executed piece of work, one must first ask what it is good for. I do not think that the work so far done has proved that it is good for anything in particular in the line of treatment of fractures because, as I read over the abstract of the paper, it seemed to me that the results were such as most orthopedic surgeons ordinarily get in the treatment of fractures. Most fractures do not have to have much done to them except proper mechanical orthopedic work. They do not necessitate special diets, special kinds of light, special kinds of operations. Most fractures, if they are held properly for a long enough time, will heal. The problem of the delayed union of fractures and the nonunion of fractures is much more complicated. Fractures with delayed union ordinarily do not need to have much done to them except to give them time enough to heal. One is in too much of a hurry in these cases. One does not want to let persons with fractures wait long enough before they begin to get back to business. This is foolish. Most fractures with delayed union will heal if one gives them time enough, whether one does a periarterial sympathectomy or not. The problem of ununited fractures, however, is different and it is in that problem that I think we shall see some extremely interesting and remarkable developments from the work that has been done and has been reported here this morning, because there are many cases in which ununited fractures will not unite, and will not unite for some reason that is not known at the present time. In the few obvious cases, of course, there is interposition of muscle and there is local reason for nonunion, of some sort or other; but

there remains, on the other hand, a large number of ununited fractures for which nobody can assign the cause of the nonunion; and in these cases it seems to me that it is probably the lack of a proper blood supply. If this periarterial sympathectomy will produce a localized hyperemia at the site of the fracture, it may be of inestimable value. What I want to see is a report from the authors next year on a number of cases of ununited fractures, not recent fractures, not those two weeks old, but old ununited fractures in which apparently the cause of the nonunion is insufficient blood supply, and in which they will do periarterial sympathectomy and report excellent results from the treatment.

DR. G. L. MCWHORTER, Chicago: I have been interested in sympathectomy for a number of conditions, including fractures, or rather the bad results of fractures, Buerger's disease and other vasomotor disturbances of the extremities. In Buerger's disease, sympathectomy probably is of little permanent effect. In some of the other conditions it may be of more benefit. I have had little experience in using sympathectomy for delayed union of fractures because I have felt that they will heal following the usual treatment, permitting a certain amount of muscle activity, by proper splinting, and sometimes by letting the patients walk when the fracture involves the legs. I have observed the most satisfactory results in two cases in which I have used periarterial sympathectomy in old fractures of the leg, one a perforating gunshot wound of the os calcis, and the other about the ankle. The first case had gone on four or five months and the patient had apparent healing of the fracture or the perforation but was unable to walk on his leg. This was due to pain, and not only did he have pain in this leg and foot, but there was a vasomotor disturbance proximal to the point of the perforating gunshot wound. This was evidently a vasomotor disturbance with a cold and painful foot and leg. I did a periarterial sympathectomy and three weeks after the operation he was walking on the leg without pain and the vasomotor disturbance had practically been completely relieved. The other case was somewhat similar but had not gone so long and the result was equally good, and I feel that from a group of perhaps twenty cases of sympathectomy I have done for various conditions, this is one condition in which it is definitely indicated. I know of no other condition in which it has produced equally good results. I should like to mention the technic of periarterial sympathectomy and I should urge it to be done as near as possible to the site of disturbance. However, the popliteal artery I think should not be used because, if for any reason ligation is necessary, gangrene of the foot may result. I think the femoral artery should be used in Hunter's canal. This offers a good location for sympathectomy and if any disturbances occur so that ligation is necessary, the collateral circulation from the large deep femoral artery will take care of the circulation.

DR. HENRY W. MEYERDING, Rochester, Minn.: I think this report is of value and that more experimental data should be available on the effects of such operations in cases of fracture, especially in cases of nonunion. I have made a study of amputated members obtained in cases in which a long history of infection has been present with nonunion. In my experience ununited fractures with pseudarthrosis are cured by excision and massive bone graft. This gives a high percentage of gratifying results. When blood vessels are injected in specimens derived from cases of old, ununited fracture, with infection, a peculiar condition is found which would not be benefited very markedly by periarterial sympathectomy; that is, the vessels are occluded, and there is heavy, dense scar tissue, through which only a few large vessels penetrate to reach the region. That, I think, is one of the reasons for nonunion. It is the cause of extensive scars breaking down following operations which one performs in correcting nonunion. I am glad that the last speaker brought out the question especially of limitation of application of periarterial sympathectomy because experimentally it has been shown that the vasodilatation following periarterial sympathectomy is not as complete and permanent as is that following sympathetic ganglionectomy and ramisection.

DR. RALPH COLP, New York: I purposely did not touch on the subject of the treatment of fractures of both bones of the leg because it has recently been adequately covered by Kennedy. In those cases in which the fractures are oblique they are treated with a pin, in traction and suspension, followed by posterior and lateral splint. There is no doubt that this is an age of rush. Most fractures will heal, as Dr. Ryerson stated, if one gives them time enough. The unfortunate thing, however, is that when one deals with industrial problems in hospitals covering large metropolitan areas the question of time is highly important and if one can get these men back to work two or three weeks sooner by some method other than that practiced heretofore, I think that that method is legitimate, because I feel that any time that can be saved to the worker is a great aid, especially in depressions such as the present. We have not done our sympathectomies in Hunter's canal because we agree with Leriche that the best results are obtained in Scarpa's triangle, where the vessel is most accessible. The dangers of injuring the vessel in Scarpa's triangle are really not as great as one might be led to believe. I have had little experience with the old osteomyelitis cases with nonunion, so I am not competent to state any facts concerning them.

WILL THE PHYSICIAN PRESCRIBE THE DIET?*

JOHN ALBERT MARSHALL, D.D.S., PH.D.
SAN FRANCISCO

A few months ago Sir Walter Fletcher[1] focused attention again toward the important recent developments that have been made in the science of nutrition. But another fact was emphasized also, which is in the nature of a criticism. In Great Britain "the medical student receives at no point in his course of study any well based and organized instruction either in the field of nutrition or in that of mental functions."

One may conscientiously ask whether this observation does not apply with equal force to the medical curriculum in the colleges in the United States. And if it does apply, is it to be wondered at that the public is being preyed on and even prayed for by the food faddists? It is true that a few outstanding schools in this country have recognized the importance of this subject and have made adequate provision for it in their curriculums. This applies to both medical and dental schools. But, in the main, the instruction that is offered the students is hardly adequate for the important place which nutrition occupies in the practice of both medicine and dentistry.

The reason for this is quite apparent. In the first place, the work of Mendel, Sherman, Steenbock, McCollum and his co-workers, and hosts of others in the field, has been so spectacular and so rapid that the professions as a whole have hardly yet been able to digest the new facts which these experimenters have brought forth, nor have the pediatricians found it practical to institute a regimen whereby full advantage could be taken of the experimental evidence presented.

In the dental field the situation is even worse, for only in a few instances have there been anything but feeble attempts made to correlate experimental evidence with clinical observation. From a study of the curriculums, as well as from conversations with many of the men interested, one may assume that the instruction offered dental students in the subject of nutrition is in most respects comparable to that offered medical students. These remarks apply merely, however, to those aspects of nutrition dealing directly with a choice of foodstuffs rather than with a discussion of their absorption by the body or their utilization and excretion.

* From the University of California.

1. Fletcher, Walter: University Ideals and the Future of Medicine, J.A.M.A. 95:1389 (Nov. 8) 1930.

This is a fault which a further extension of courses in biochemistry may correct.

If one reviews the facts that have been brought out in the last few years, they can be summarized in a few sentences. First, hypoplastic teeth have been observed in animals placed on certain deficient diets. Rats, dogs, monkeys and guinea-pigs have been used in this work. The degree of dietary deficiency and the resultant dental hypoplasia are disproportionate; that is to say, the amount of injury which the tooth suffers is out of all proportion to the relatively small changes occurring in the diet. Results in this field of research have been reported by Howe,[2] McCollum and his co-workers,[3] the Mellanbys,[4] Höjer [5] and Marshall.[6]

The diets that cause various degrees of hypoplasia are those in which any one of several factors may be altered. Of these, among the most important seem to be the vitamins and the relation of the vitamins to various mineral constituents in the diet, notably calcium and phosphorus.

Many members of the dental profession have been interested in these experiments and have attempted to make some application of them to their practice. That they have not been successful is no cause for chagrin. If malnutrition were the sole etiologic factor in certain types of dental pathology, then one would expect that more spectacular results would be secured when corrective dietary measures are applied to the typical clinical cases. However, in spite of the complexity of the etiology, advantage certainly must be taken of any corrective measures, such as an altered diet. In this connection, the work of Mellanby, in England, and of Boyd and Drain, in this country, is of outstanding importance, for both have shown that changes in tooth structure in teeth which have already erupted can be produced when diets are sufficiently corrected.

Although the metabolism of calcium salts has not yet been worked out to the same degree of exactitude that has been possible in studying carbohydrates, fats or proteins, it has been shown conclusively that diet is only one factor in the process of utilization of calcium by the body.

With recognition of the need for help in this field, attempts have been made to correlate more closely the medical and dental aspects. That such a correlation is absolutely essential for the well being of the patient needs no argument, but that the members of the dental profession have not received whole-hearted cooperation from their medical friends is basis for profound regret. Patients, of course, may object to the many tests that are necessary before the physician is in a position to recommend dietary changes. The dentist then is faced with this responsibility: Is he in a position to recommend to his patient certain changes in the diet and explain the necessity for these changes, or is he in a position to prescribe a dietary regimen?

It is difficult, in some respects, to indicate a dividing line between the practice of medicine and of dentistry. This applies particularly to systemic conditions which predispose the individual to dental caries and other lesions of the tooth, paradentium and oral mucosa.

If it were possible to state that the etiology of dental caries had to do almost exclusively with oral bacteriology, then the field of research and of clinical application would be much simpler. Such, however, is not the case. It is probable that there are five factors concerned in certain types of dental pathology, such as dental caries and pyorrhea. These may be summarized under the following heads: anatomic, bacteriologic, chemical, dietary and endocrine. Of these five, it is not yet possible to state which are, or is, the most important. This much, however, may be said, that the dietary deficiencies are largely responsible for gross and microscopic variations in the anatomy of the teeth. Dysfunction of one tooth may be responsible for extensive changes in development of the alveolar process, changes that result in malposition of the secondary teeth. But it is possible also that the dietary factors are more important than is now admitted.

It would seem that a useful method of applying the present knowledge of dietary research would be for the dentist to secure more cordial cooperation with the patient and the physician. Unfortunately, however, there are too many instances wherein this cooperation either is not sought by the dentist or is refused by either the patient or the physician. The latter situation deserves a free and open discussion in the hope that a solution of the problem may be reached. Until this point is attained, the dentist is thrown, so to speak, on his own resources and perforce must designate, at least in a general way, those changes in the diet which a study of the case seems to indicate. Recommendations on choice of food are frequently necessary and may be made by the dentist without assuming any responsibility. Any further instructions should be left to the medically trained man.

Dietary prescription is a different matter. It is based on a careful study by the physician of many data, gathered both by laboratory and by clinical methods. The interpretation of these data and their application is the duty of the physician rather than of the dentist. But the clinical application of these facts becomes the joint duty of dentist and physician.

Parnassus Avenue and Arguello Boulevard.

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Humanism.—We have recently had an episode of such criticisms of science that was rather interesting while it lasted. I refer to the rise and fall of the Humanist cult led by Irving Babbitt. . . . Humanism is the name of an undertaking begun about the year 1300 in which the goal was the discovery and promulgation of the good life on this lowly planet by the use of human faculties. With such announced intentions one might assume, it seems to me, that scientific work should have been promoted. Galileo and Kepler and Harvey should be the pride of the order, since ability to reason is certainly the distinctively human trait. But no; not even such master deriders of folly as Boccaccio and Rabelais are admitted to fellowship. The true humanist, as nearly as I can gather from the unintelligible though voluminous definitions of the modern exponent, is not he who bestows new knowledge upon his fellow men, but rather he who believes that progress ended with the decline of the classic Greek tradition. The announced tenets of humanism are a sense of decorum and a "will to refrain"; and each humanist naturally writes a book to explain what these precepts mean. The resulting volumes achieve harmony on only one point, and this makes the contents far from dull: there is no need for restraint when attacking error.—East, E. M.: Biology in Human Affairs, New York, McGraw-Hill Book Company, Inc., 1931.

Clinical Notes, Suggestions, and New Instruments

PREPARATION OF BEEF JUICE IN PREVENTION OF BEEF TAPEWORM INFESTATION IN CHILDREN: REPORT OF A CASE*

I. M. Levin, M.D., and Isadore Pilot, M.D., Chicago

This instance of beef tapeworm (*Taenia saginata*) infestation in a boy, aged 2 years, is reported to emphasize the importance of the proper preparation of "beef juice," commonly prescribed by pediatricians in the diet of infants and young children.

The literature discloses numerous reports of *Taenia saginata* infestation in children. Ostheimer and Spangler[1] reviewed the literature and reported a case in a boy, aged 3 years. Of fifteen reported instances of *Taenia saginata* infestation in children under the age of 4 years, they found that there was a history of ingestion of raw or scraped beef in ten. In a recent communication we[2] stressed the incidence of fish tapeworm infestation in children who had tasted raw fish.

In the treatment of chronic intestinal indigestion (celiac disease) and secondary anemia the use of raw scraped beef and raw and cooked beef juice has long occupied a prominent place. Beef juice affords an excellent organic iron supply in the diet of normal infants.

A common recipe for the preparation of beef juice is: "Take round steak; broil slightly, cut into small pieces, and then press out the juice with a meat press or potato ricer. Feed fresh or warm before giving but do not heat sufficient to coagulate albumin." This incomplete boiling or broiling of meat and the feeding in the raw state are open to the objection that they permit the possibility of ingestion of viable cysticerci. The newer methods of treatment in celiac disease, namely, protein milk and ripe bananas, should eliminate the use of raw meat.

Another common recipe for preparing beef juice is: "Take round steak or neck meat; cut into small pieces, place in a mason jar, cover tightly, place in a pot of water, boil two hours, and then collect juice." This method, although insuring the destruction of cysticerci, is open to the objection that, in the process of heating, the resulting coagulation fixes the blood in the meat, and the beef juice contains extractives chiefly and little organic iron.

In 1901, Miller[3] reported a case of *Taenia saginata* in a child, aged 24 months, from the use of raw scraped beef for the relief of a chronic intestinal disturbance. He emphasized that "if the beef is finely minced and pressed with a beef press (not with a lemon squeezer), and then strained through fine muslin, such as a linen handkerchief (not through cheesecloth, which may permit the cysticerci to escape through its meshes) the possibility of infection is practically eliminated." Muslin or handkerchiefs are effective filters because of the relatively large size of the cysticercus, which measures from 3 to 9 mm. in length and 2 to 5 mm. in width.

In the case which we are reporting, the mother stated that she employed the method of placing small pieces of meat in a tightly covered jar, but boiled the water for only thirty to forty-five minutes, indicating that in this period of time the cysticerci may still be viable.

REPORT OF CASE

A. B., a normally born male infant, was regularly under our care throughout infancy; he weighed 19½ pounds (8.8 Kg.) at 9 months of age. At this time, beef juice was added to his diet. Except for a few minor infections of the upper respiratory tract, he did well until the age of 2 years. From this time on, an anorexia developed, and the child became pale and fretful and had several short periods of diarrhea. At 2 years and 3 months, his mother noted tapeworm segments in the stool (Aug. 6, 1928).

The child was placed on a liquid diet for three days, given a mixture of spirit of chloroform and magnesium sulphate in water[4] and several doses of pelletierine tannate. He passed a few feet of worm and a week later was admitted to the hospital. The urine was normal. The blood examination revealed: hemoglobin, 65 per cent; erythrocytes, 4,250,000; leukocytes, 7,200; neutrophils, 48 per cent; eosinophils, 4 per cent; basophils, 2 per cent; small lymphocytes, 40 per cent, and large lymphocytes, 5 per cent. The previous treatment was repeated, but 20 grains (1.3 Gm.) of oleoresin of aspidium was administered in divided doses. Again, several feet of *Taenia saginata* was passed, but the head was not recovered. Five weeks later (September 19) the mother again noted tapeworm segments. The patient returned to the hospital and on repetition of the same treatment he yielded 8 feet of worm. He was well for a month, when his appetite became very poor, and he appeared quite ill. He passed segments again (November 23) and on aspidium treatment he expelled 13 feet of tapeworm. Following this, he commenced to improve and during three months had gained 5 pounds (2.3 Kg.), the total weight being 34 pounds (15.4 Kg.). At this time, segments were again discovered (Feb. 25, 1929). Repetition of the same treatment at home yielded a large amount of worm. Repeated examinations of the stools to date have revealed no segments or ova; the child now enjoys excellent health.

SUMMARY

1. Raw meat and incompletely boiled or unfiltered beef juice should be avoided in the diet of young children.

2. A safe method for the preparation of beef juice is quoted.

3. A case of *Taenia saginata* infestation with toxic symptoms in a boy, aged 2 years, is reported.

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* From the Lutheran Deaconess Hospital and the Department of Pathology and Bacteriology of the University of Illinois College of Medicine.

1. Ostheimer, M., and Spangler, A. A.: Ileocolitis in a Boy of Three Years Complicated by the Presence of a Tapeworm, Pennsylvania M. J. **11**: 952, 1907.

2. Pilot, Isadore; and Levin, I. M.: Native Infestation with Diphyllobothrium Latum (Fish Tapeworm): Report of Five Cases in Children, Am. J. M. Sc. **181**: 710 (May) 1931.

3. Miller, D. J. M.: A Case of Taenia Saginata in a Child of Twenty-Four Months from the Use of Raw Scraped Beef for the Relief of a Chronic Intestinal Disturbance, Pediatrics **12**: 90 (Aug.) 1901.

4. Osborne, O. T., and Fishbein, Morris: Handbook of Therapy, ed. 7, Chicago, American Medical Association, 1923, p. 295.

Council on Physical Therapy

The Council on Physical Therapy of the American Medical Association has authorized publication of the following article.

H. A. Carter, Secretary.

UNDERWATER GYMNASTICS

C. L. LOWMAN, M.D.

Los Angeles

The commonest misconception regarding this physical therapy modality seems to be that it is the treatment of paralysis by "swimming." I have even heard some orthopedic surgeons say "your swimming pool," or "How about your swimming treatment?" The objection to this is twofold. In the first place, muscle reeducation under water is not swimming. Certain movements of the free floating type produce progression and often some of the same movements used in swimming are employed, but the purpose is not to teach swimming.

The chief reason for objecting, however, is the danger of swimming instructors getting the idea that they are competent to treat paralytic and other types of cases in the water. The result is that the untrained and unscrupulous take such patients into the water when it is often too cold, and give them swimming strokes which usually strengthen muscles already strong, such as the pectorals, and increase their tendency to contracture or their overaction against weakened opponents, such as the deltoids. This increase of pleasurable activity of a recreational character may be good, but it is at the expense of increasing deformity.

Also the impression that pool work is chiefly for patients with paralysis should be corrected. My early demonstration of its value in the treatment of both acute and chronic poliomyelitis probably led to the emphasis on this aspect of its use. However, a great variety of conditions are amenable to its use. One of its chief advantages is the removal of gravity load from the joints, due to buoyancy and possibility of movement of the whole body, or any of its parts in any direction. The buoyancy factor is effective for both assistive and resistive movements, and movement of parts in the water that cannot be moved out of it because of pain and spasm. Fear, apprehension and inhibitory reactions against movement either do not develop or are greatly lessened. This decreases the time of treatment and avoids delays, which are often disastrous in joint lesions of traumatic or postoperative type. Nervous and mental tension is reduced because of the relaxing effect of the warm water and the decrease of tactile sensation through the skin. Morale is increased and a better physiologic state obtained from relief of pain, fear and anxiety, and the production of a pleasurable state instead.

There is an erroneous idea in some minds that this modality can be administered by employees having no special training or that a nurse or any one who can swim might be a suitable technician. It happens that the reverse is just the case. I have found that some of the best trained technicians, with even a master's degree in physical education, have required laborious attention and much teaching before mastering a proper technic.

A simple knowledge of kinetics is not sufficient by any means to qualify a technician. The teacher should have an extensive knowledge of abnormal kinesiology and the pathologic aspects of her cases; a good personality; a thorough acquaintance with all the pedagogic tricks needed in teaching and a knowledge of the limitations of this modality—its indications, contraindications and technic.

I find that the commonest error, made by even well trained technicians, is the tendency to overwork the patient. Nothing is so deceptive as work in the water. It is very fatiguing, especially to the weak and afflicted. The gravity load being removed, the parts move more easily through a greater arc and this freedom is misleading and makes actual grading of the amount of movement to be used quite difficult. Having had a personal experience, following painful injury of my legs, I have had this point brought forcibly to my attention. Periods as short as five to ten minutes are all that patients with severe involvement can stand.

I [1] have already called attention to the limitation of the character of work done in pools as the result of physical factors.

The chief difference between the former use of small tanks, into which the patients were suspended by shoulder belt and chain, and the present use of shallower pools with the technician in the water, is that in the former the extremities alone could be moved without aid or control of the technician. Now the technician is at hand to guide and assist, and trunk motions, which are of vital importance in many cases, can be accomplished.

Many laymen believe that the influence on paralytic and other ailments is due to some inherent potency or active principle in the water. This idea probably has gained ground because of the use of natural hot springs in some places for work of this sort, and it is common sales talk in advertising sanatoriums and resorts at which hot springs exist to claim that the efficacy of treatment by or in these waters is due to some active factor in them. The value of underwater gymnastics, however, is one of physics and not of chemistry.

The best proportioned pools are from 9 to 15 feet wide, 18 to 30 feet long, 2 feet 6 inches deep at the shallow end, and 4 feet 6 inches deep at the deep end. In a pool from 20 to 30 feet long, the floor of the shallow end for 6 or 8 feet should be very nearly level, with just enough slant for drainage, the last four feet of the deep end being the same, with opposite slant, the discharge outlet at the deep end being at the junction of the two inclines. This allows an area for walking in uniform depth for children at one end and for adults at the other. Walking in deep water is of great value for the beginning steps after various leg and hip operations, as the amount of weight borne can be accurately graduated. This allows the patient, at first with crutches and then without them, to go through the motions of stepping and walking with but a slight amount of weight actually being borne on the operated parts. In this way the usual stress or danger to the operated area is avoided and pain and inhibitory spasm are eliminated. Increased nutrition and muscle tone also improve callus formation. Data on post-traumatic therapy of the pool comprise the subject matter of a paper now under way.

Another point is the confusion of the recreational and reeducational features. Technically, it is not sound clinical or physiologic treatment to mix the two as is done in some pools. The play factor has no place in the schedule during the stage of concentrated muscle training. The latter is regulatory and disciplinary in character and is actually mental and muscular effort, or work, and not play. It may be granted that in children too young to have much power of concentration, and in those a little older whose attention span is limited, the stimulus to action must be covered up and interest aroused through stories or games. However, this plays on the dramatic instinct of the child, who likes to act out his emotions. The constant effort of the technician must be directed toward getting definite, deliberate motor response to command by purpose and direction—not by indirection—even though that is better than none at all. In spastics, the latter method may have to be used at first, to avoid too great an effort and concentration and prevent increasing tension and rigidity.

For patients not requiring strict dosage such as patients being treated because of faulty posture, a recreational swim will not do any harm, nor will it for patients with paralysis at the end of their course of treatment, when the final stage of recovery has been reached; i. e., the amount of comeback proved. To me it seems highly inconsistent, during the stage of actual technical muscle training, when an effort at stimulating the muscles to maximal exertion is made, to attempt prescribed and carefully graded dosage of exercise of paralyzed or impaired muscles and then at any time during the day to allow free recreational swimming, or play, without the protection of braces to the weakened muscles. If the latter activity, unsupervised, is to be allowed on a play basis of free response to emotional impulses and desires, of what use is a carefully laid out plan of graded, supervised muscle training If work in the water, under a cautious technician who allows only slow, deliberate movements is fatiguing, what must happen to the affected muscles in the unsupervised activity? The very condition of the handicapped

1. Lowman, C. L.: Physical Equipment of Therapeutic Pools, J. A. M. A. 94: 845 (March 22) 1930.

paralytic patient requires him to make greater effort to accomplish his movements. Hence, to compensate his sense of inferiority he will be too persistent in his attempts and become fatigued or else overdevelop existing normal or overactive muscle groups. This tends to favor deformity.

If swimming is to be allowed, the patient with poliomyelitis, and even the patient with bad posture should be most carefully supervised and only those strokes that are corrective be allowed. This, however, is far from being free pool play. In any case it should not occur on the same day as actual muscle training treatments.

I should like to sound a note of warning to technicians regarding the handling of frail individuals even in reasonably warm pools. The danger of chilling the skin must not be overlooked because of the bad effect on the general well being of the patient, especially if he has a kidney lesion. I have noted that quite a high percentage of patients with early, acute poliomyelitis show a nephritis of varying grades—sometimes only slight, and sometimes one that takes several weeks to clear up. Even in the equable climate of southern California, after these patients leave the pool they chill rapidly because of the slight amount of fatigue produced by their efforts in the water, and it sometimes takes quite a while to restore a normal skin temperature. Any patient who has suffered a lengthy illness from a debilitating disease or infection, is susceptible to this reaction. It is advisable to cover the patient with a large, hot bath towel or blanket immediately after he leaves the pool. As patients are raised from the water with the electric hoist, the attendant drops a warm towel on them at once, so they are not exposed to the air while being transferred to the dressing room. It is also well to have a hot air blower in the dressing room, which can be directed against the body, and not only assist in drying but prevent chilling. Occasionally persons with poliomyelitis in severe form, or with paralysis from fractured spines, who are in a depleted state, and become subnormal readily, are obliged to have their treatments discontinued or reduced in duration or number. Unless great care is taken in estimating the point of fatigue, many patients are allowed to overdo. Even if they are chilled but slightly they may take cold and suffer from congested sinuses or disorders of the respiratory tract, aside from the effect on the kidneys already mentioned.

The question of hygiene of the pool is one that also needs special attention, even though the water is chlorinated. The patient should be properly prepared by local bathing, or a shower, when possible, before entering the pool.

One of the reasons why technicians who remain in the water for long periods should wear rubber suits is that the bacterial load of the pool is reduced and more easily controlled. In pools used by women bathers this factor is more serious than in men's pools. One technician in the pool for eight hours is equal to sixteen patients at thirty minutes each.

The hypochlorite solutions are better than the use of free chlorine gas because there is less danger to the children from possible escape of free gas, as has occurred in some pools. The hypochlorite solution, according to government tests, appears to be more of a bacteriacide than the free chlorine, and less irritating to the eyes.

Whenever possible it is advisable for the patient to take a rest period immediately after the pool treatment, because of its fatiguing effect, and particularly as it is easier to take a nap at this time. This is valuable in nervous and highly strung patients—spastic patients, choreic patients and hypertense children in general.

The use of sun treatment in connection with the pool, or at other times, is one that should be graded very carefully under a physician's prescription. The fact that the sun's rays are a powerful stimulant makes it rather poor physical therapy to try to whip up a body that has just been placed in a fatigued state by another modality. Many times, in the interest of stimulating the child's activities, there is a tendency to do too much rather than too little and, as already stated, the exercise of common sense and caution is of great importance. Highly strung, erratic, children of the lithe type under any treatment need to develop poise and control, and should have a slowed down program rather than a speeded up one. Those with a great deal of mental drive frequently spend too much energy in everything they do, and care must be taken in physical therapeutic treatments not to aid this tendency.

The points brought out may be thus summarized:

1. Avoid too protracted periods in the water in order not to develop fatigue.
2. Avoid chilling and too rapid cooling of the skin.
3. Use great care in protecting affected and painful joints, or other parts, while drying and changing clothes.
4. Avoid careless handling from bed to pool.
5. Do not fail to give splint support to operated or paralytic joints.

These points must be especially watched in acute poliomyelitis cases.

Patients with chronic poliomyelitis should, in addition to these suggestions, have greater consideration of trunk exercises to develop better body balance. One should avoid careless supervision of activities.

In fracture cases the technician's time should not be wasted on small arm fractures and others that can be handled just as well without this modality.

One should not expect the pool to restore arthritic joints that are practically ankylosed.

In scoliosis one should not expect to do more than raise the general tone, possibly lost from long cast or recumbency treatment.

Early treatments after fusion should not be given without a protective waterproof back splint until at least three months after operation and then only on the surgeon's orders, unless there is roentgen evidence of certain and firm ankylosis.

Spastic patients should not be taken into pools that are noisy and where other active work is going on. The water should be hot. Cold or cool pools are contraindicated.

Only the auxiliary playthings that are used as an essential part of the treatment should be employed—those for grasping, handling, pushing, blowing, and the like.

2417 South Hope Street.

Laboratories.—If this sounds too idealistic, listen to the famous message of the great Pasteur, who said: "Take interest, I implore you, in those sacred dwellings which one designates by the expressive term laboratories. Demand that they be multiplied, that they be adorned; these are the temples of well being and of happiness. There it is that humanity grows greater, stronger, better," for, as he says elsewhere, "Science is the soul of prosperity of nations and the living source of all progress."—Graves, W. P.: The Unification of Science and Its Relation to the Control of Life, *Am. J. Obst. & Gynec.* **22**:349 (Sept.) 1931.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

LIQUID PETROLATUM (See New and Nonofficial Remedies, 1931, p. 235).

The following dosage form has been accepted:

Squibb Liquid Petrolatum with Agar and Phenolphthalein: Liquid petrolatum-Squibb, heavy (California), 50 cc.; agar, 1.5 Gm.; phenolphthalein, 0.095 Gm. (1½ grains per fluidounce); sodium benzoate, 0.1 Gm.; acacia, glycerin and water sufficient to make 100 cc.

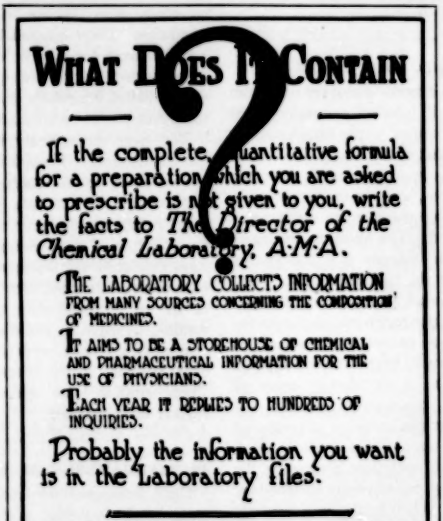
SOLUTION LIVER EXTRACT PARENTERAL-LEDERLE. — A sterile aqueous solution of a concentrated water soluble, nitrogenous, nonprotein fraction obtained from fresh mammalian liver. It is marketed in ampules, each containing the material obtained from 100 Gm. of liver.

Actions and Uses.—Solution liver extract parenteral-Lederle is proposed for intramuscular or intravenous injection in the treatment of pernicious anemia.

Dosage. — Determined by the condition of the patient; satisfactory results have been obtained by the injection of a dose of one ampule daily for three or four days. The proposed maintenance dose is one ampule per week; but it must be determined for the individual patient.

Manufactured by the Lederle Laboratories, Inc., Pearl River, N. Y. No U. S. patent or trademark.

To prepare liver extract parenteral-Lederle, the finely minced livers of edible animals are added to water. The mixture is adjusted to a *p*H of from 5.4 to 5.8, heated to 75 C. to coagulate the protein, held to this temperature for thirty minutes, and filtered. The filtrate is concentrated in vacuo to small bulk, and enough 95 per cent alcohol is added so that the final mixture contains 65 per cent of alcohol by volume. The precipitate is discarded and the alcoholic filtrate concentrated in vacuo, sufficient absolute alcohol being added to precipitate the active material, which is subsequently dried in vacuo and granulated. It is soluble in water; insoluble in alcohol, acetone or ether. One Gm. of the finished product represents approximately 45 Gm. of fresh, whole liver. The resulting powder is dissolved in distilled water, heated to 70 C., passed through a Berkefeld filter, and filled into ampules.


WHAT DOES IT CONTAIN
If the complete quantitative formula for a preparation which you are asked to prescribe is not given to you, write the facts to The Director of the Chemical Laboratory, A.M.A.
THE LABORATORY COLLECTS INFORMATION FROM MANY SOURCES CONCERNING THE COMPOSITION OF MEDICINES.
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EACH YEAR IT REPLIES TO HUNDREDS OF INQUIRIES.
Probably the information you want is in the Laboratory files.

Another reduced reproduction of a poster shown in the A. M. A. Chemical Laboratory exhibit at the Philadelphia Session. This poster explains that chemical questions can often be answered for individuals by reference to the Laboratory's files which are up-to-date and at the service of the physician.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

LACTO-KELPOL NOT ACCEPTABLE FOR N. N. R.

Lacto-Kelpol is the proprietary name under which the Kelp-Ol Laboratories, Inc., Los Angeles, submitted (under two forms, distinguished by a red and a brown label) a preparation stated to consist of lactic acid (brown label) 0.5 per cent, (blue label) 1.0 per cent; agar-agar 10.0 per cent; mineral oil 33.33 per cent; sodium benzoate 0.1 per cent; water and flavoring. The chief claim for Lacto-Kelpol was that it is prepared by a special process whereby the lactic acid is "locked up with the agar and oil so that it is unaffected by the gastric juice," the entire content of Lacto-Kelpol passing through the stomach into the intestine and acidulating the intestinal contents, retarding the growth of putrefactive organisms and stimulating the growth of Bacillus acidophilus. Lacto-Kelpol was recommended for a great variety of conditions including chronic constipation, influenza, hypertension, neuroses, asthma, eczema, acne, gastric and duodenal ulcer, enteritis, mucous colitis, intestinal toxemia, arthritis, hypothyroid conditions and dysentery.

In support of its claims the manufacturers submitted a reprint of an article by John F. Kessel (*Proc. Soc. Exper. Biol. & Med.* **27**:113, 118, 1929). Kessel calls attention to the contradictory statements in the literature concerning the effects following the administration of lactic acid and says that he chose Lacto-Kelpol because of the claims of the manufacturer just mentioned. Kessel found that the administration of Lacto-Kelpol 1 per cent increased the *p*H of the feces slightly in monkeys and somewhat more in man. He makes no mention of any control experiments in which lactic acid alone was administered, though he did administer it to rats without satisfactory effects, nor does he state what amounts of Lacto-Kelpol 1 per cent were used. His examination of the feces showed uniformly considerable increase in B. acidophilus after Lacto-Kelpol. The dose of Lacto-Kelpol stated on the label is a tablespoonful or more.

Lacto-Kelpol has a decidedly acid taste, and when it is shaken with a dilute solution of sodium bicarbonate in water active effervescence occurs. It is well known that emulsions of liquid petrolatum with agar are broken up in the intestine; hence there is no reason to believe that the lactic acid in Lacto-Kelpol will behave essentially differently from a dilute solution of lactic acid in spite of the findings of Kessel, which, for reasons previously stated, cannot be accepted as having any essential bearing on the problem.

The Council's referee reported that he had obtained evidence which seems to show conclusively that the lactic acid in Lacto-Kelpol is not so firmly fixed in the emulsion as to escape solution in the gastric and intestinal fluids. In other words, it appears to behave almost exactly like a solution of lactic acid.

Without consideration at the present time of the question of the name of Lacto-Kelpol, the Council declared the product unacceptable for New and Nonofficial Remedies because there is no satisfactory supporting evidence for the claim that the lactic acid contained in Lacto-Kelpol emulsion behaves essentially differently from a dilute solution of lactic acid.

When the preceding report was submitted to the Kelpol Laboratories, postponement was requested in order that further evidence might be submitted. The firm submitted reports of animal experiments and also reports of four clinical trials. This evidence did not permit acceptance by the Council of the statement that the behavior of Lacto-Kelpol in the human intestine is essentially different from that of a dilute solution of lactic acid, and accordingly the Council confirmed its decision declaring Lacto-Kelpol unacceptable for New and Nonofficial Remedies.

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SATURDAY, OCTOBER 10, 1931

"LECITHIN" AND THE LIVER

The investigations that led to the discovery of insulin were motivated by the well justified assumption that the defect of the pancreas leading to the manifestations of diabetes involves only part of the organ, the islands of Langerhans. Glycosuria results promptly when the entire pancreas is extirpated, and death ensues presently in experimental animals unless some specific corrective measure is employed. The question was early raised as to whether the fatal outcome is due to factors other than the mere loss of the hormone insulin. One thinks at once of the "external" secretion of the pancreas that empties through the pancreatic duct into the intestine to facilitate various phases of digestion. A number of experiments seem to have excluded the loss of the digestive secretion as a contributory cause of the damaging effects of pancreatectomy. It was observed, for example, that the complete drainage of pancreatic juice to the exterior is not necessarily fatal. In such cases the "internal" secretion, containing the essential hormone regulating carbohydrate metabolism, is not lost to the organism. When insulin was regularly administered to them in suitable amounts, animals deprived of the pancreas have been kept alive and in good health for considerable periods. Presently untoward symptoms have arisen in many instances.

Toronto physiologists [1] have described the outcome when depancreatized dogs were maintained on diets of lean raw meat and sugar in addition to the insulin medication. After a period of good health for several months, the animals began to appear depressed and apathetic and took little food. Jaundice was sometimes quite marked and bile pigments were found in the urine, the volume of which became less and less. Vomiting was frequently present. Extreme weakness and diarrhea preceded death, the feces being dark and occasionally containing small amounts of blood. Postmortem examination revealed that the liver was the chief and in most cases the only organ obviously affected, marked fatty infiltration (up to 35.5 per cent) being observed. Even the earlier investigators had noticed that such untoward results can be averted by the inclusion of raw pancreas in the diet. As the digestive enzymes appeared not to be responsible for this improvement in health, the identity of the factor in raw pancreas has become a problem of interest. Hershey and Soskin [2] of Toronto have lately reported that depancreatized dogs receiving insulin and a cane sugar and lean beef muscle diet will survive for a long period, presumably "indefinitely," without pancreatic enzymes being available, provided they receive frequent doses of egg yolk "lecithin." When depancreatized dogs do develop the characteristic syndrome attributed largely to failure of liver function, the addition of "lecithin" to their diet regularly and promptly alleviates the signs and symptoms of this condition. These beneficial effects of "lecithin" suggest that the liver function is improved and this suggestion is supported by the necropsy. Evidence is presented which makes it unlikely that vitamins are concerned in the development or alleviation of this condition.

The liver undoubtedly takes an important part in fat metabolism. Phospholipoids, such as "lecithin," are believed to be concerned in the utilization of fats. Lack of adequate phospholipoids in the diet may result, particularly under the peculiar conditions of loss of the pancreas, in "liver failure" such as inappropriately fed depancreatized animals show. It is noteworthy that when such conditions arise there seems to be an unusual susceptibility to overdosage with insulin. Apparently the disordered liver can no longer synthesize glycogen properly, so that there is an inadequate response to the needs created by insulin therapy. These studies have opened an important field for further investigation.

1. Allan, Bowie, Macleod and Robinson: British J. Exper. Path. 5:75 (April) 1924.

2. Hershey, J. M., and Soskin, S.: Substitution of "Lecithin" for Raw Pancreas in the Diet of the Depancreatized Dog, Am. J. Physiol. 98:74 (Aug.) 1931.

IS MANGANESE AN ESSENTIAL ELEMENT?

Until comparatively recent times the interest of students of physiology in the inorganic constituents of the body or the so-called mineral nutrients was limited to a few elements. The list comprised sulphur and phosphorus (which exist partly in organic combinations), chlorine, sodium, potassium, calcium, magnesium and iron. This by no means exhausts the variety of elements that can be detected in the body or in the animal and plant products that serve as food; but the others are present in quantities that were described as "traces" and were assumed to represent chance contaminants. Plants, on which ultimately all animal forms depend for sustenance, grow in a medium—the soil—that contains a larger number of elements. It might be expected, therefore, that traces of many of them would inevitably find their way adventitiously into the animal organism, without representing any real essential of life. The discovery, in 1895, of the significant part played by mere traces—that is, a few milligrams—

of iodine in the human organism represented the beginning of a new sort of interest in the elements occurring in small amounts in living tissues. The determination of what is essential and what adventitious is not easy. Obviously an inorganic element or compound that is toxic in small amounts is not likely to be indispensable or even advantageous to the body. There are substances, however, that are toxic in larger doses yet innocuous in small amounts. For example, concentrated hydrochloric acid is a menace to tissue; in weak concentrations it functions admirably as a component of the gastric juice. The combinations in which elements occur also affect their physiologic significance; witness the difference in the effects of phosphates and elementary phosphorus, or of nitrogen in nitrates and amino-acids, respectively.

Considerable has been written of late about the possible rôle of copper as a "promoter" of hemoglobin formation in certain types of anemia. It appears to act as a supplement to iron in this process. A similar function has been attributed to other elements, notably manganese, though the claims are still stoutly denied by the majority of the investigators. It cannot be denied, however, that manganese is constantly present in animal tissues,[1] a fact that has justified the assumption that it is likely to promote some useful purpose. Obviously, some answer to the question might be secured if experimental animals could be observed on diets devoid of manganese. Such rations are not easily prepared, but several investigators seem to have been successful. Kemmer, Elvehjem and Hart [2] have found that milk is extremely low in manganese, containing approximately 0.02 mg. per liter, and yet furnishes most of the necessary food factors with the exception of iron and copper. It is difficult to assemble a synthetic diet that is lower in manganese than a corresponding amount of milk, even when only the most highly purified constituents are used. According to their observations the addition of traces of manganese to a diet of whole cow's milk supplemented with iron and copper has a favorable effect on the growth of mice. Without the manganese, they fail to ovulate properly. The same seems to be true in the case of female rats,[3] in that manganese greatly improves the ovulation rhythm. At any rate the Wisconsin experiments indicate that manganese may be closely connected with the reproductive organs. Investigators [4] at Johns Hopkins University also insist that manganese does not take part in blood regeneration. They believe that the element aids in rendering a diet complete for the support of reproduction and suckling of young. It may be that the mammary tissue is not adequately developed in the females. It is stated that the germinal epithelium in the male rat on a manganese-free diet degenerates.

As a working hypothesis, based on similarity of clinical evidence of human subjects with the observed effects of manganese deficiency on rats of both sexes, the Johns Hopkins investigators suggest the provisional hypothesis that manganese is in some manner concerned with the production of a hormone by the anterior lobe of the hypophysis, which is essential for the functioning of the testes and for the proper development and functioning of the mammary tissue. Whatever the ultimate conclusions may be in the light of much further research, it already seems imperative to consider seriously the potentialities of manganese (in minute amounts) as an element of some significance in the body.

1. Skinner, J. T.; Peterson, W. H., and Steenbock, Harry: J. Biol. Chem. **90**: 65 (Jan.) 1931.
2. Kemmer, A. R.; Elvehjem, C. A., and Hart, E. B.: Studies on the Relation of Manganese to the Nutrition of the Mouse, J. Biol. Chem. **92**: 623 (Aug.) 1931.
3. Waddell, J.; Steenbock, Harry; and Hart, E. B.: J. Nutrition **4**: 53 (May) 1931.
4. Orent, E. R., and McCollum, E. V.: Effects of Deprivation of Manganese in the Rat, J. Biol. Chem. **92**: 651 (Aug.) 1931.

DONHIDE—ANOTHER NOSTRUM FOR EPILEPSY

Certain diseases that afflict mankind arouse greater distress and thereby greater pity than do others. Epilepsy, known to the ancients as "falling sickness," is of this type. It is not infrequent, yet its manifestations are sufficiently unusual to attract the curiosity of the multitude. Numerous attempts made to relieve the condition have resulted in the development of certain well known drugs of a sedative character which, while controlling the attacks to some extent, nevertheless do not constitute, in any sense of the word, a "cure."

The Bureau of Investigation of the American Medical Association has a pamphlet which lists a considerable number of preparations purveyed directly to the public with outrageously false or indirectly exaggerated claims as to their merits in this disease. Practically all these preparations have in the past been found to contain bromides or phenobarbital (luminal) as their potent ingredients, other medicaments being added merely to mask the nature of the product, to confuse the user or to lend it some semblance of originality. The most recent addition to this group of unwarranted and actually cruel "patent medicines" is a preparation said to be made by the Riverside Laboratories, New York —a preparation given for some reason not clear the name "Donhide."

The advertising for this product is unusually insidious. A clipping from the New York *Evening Journal* is circulated with the caption "How much longer must this continue?" It refers to attacks of epilepsy, affecting two people in New York, who accidently fell and sustained serious injuries during an attack. A direct appeal has been made to the governors of several states, urging them to give "Donhide" a trial in their institutions and citing the alleged fact that Governor Sampson of Kentucky requested Dr. Addie M. Lyon of the state institution for the feebleminded at Frankfort to try the remedy. A telegram from Dr. Lyon received by THE JOURNAL states: "I have not authorized the Manhasset Chemical Co. to use my name in their effort to laud the

use of their compound Donhide. I fear this is nostrum propaganda. Do not use my name to endorse it." Moreover, a circular letter sent to physicians mentions the same request by the governor of Kentucky and points out that the manufacturers have invited the Associated Press to witness the Kentucky experiment. Certainly this must be an unwarranted use of the name of the Associated Press in the promotion of a nostrum for epilepsy. The manufacturer is not unaware of the fact that nostrums exist, for he alleges in his letter that Donhide "is not simply another of the many nostrums."

Because of the extensive propaganda being made for this substance the purveyor was informed that the statement of composition of Donhide—namely, sodium bromide, ammonium bromide, scutellaria, cinchona, glycerin and aqua destillata—was unquantitative and therefore of little value. He was told that there was no reason to believe that this medicament could do anything that any other mixture of bromides could not do. Scutellaria (skullcap), it was pointed out, is a substance claimed, without adequate evidence, to be a tonic, nervine and antispasmodic, particularly in chorea and convulsions. To this statement the promoter replied that it acts solely in the capacity of sales and distributing agency for "Donhide" and that the manufacturer is the Riverside Laboratories of New York City. Because of the information it had received, said the firm, it had immediately modified the composition of its product, eliminating the "scuttellarin" [sic] and reducing the bromide to approximately one-third the original amount. The company also offered to find a new name and objected to the charge that the claims made for the product were not warranted, because it had evidence that epileptic patients had been relieved through the use of the preparation. As we go to press a statement is received from the Manhasset Chemical Company, Inc., saying: "We have made a thorough investigation of your criticisms. This investigation has ascertained the truth of your criticism, due to which we have been persuaded to discontinue the sale and promotion of Donhide. Accordingly, anything relating to Donhide will have to be taken up with the Riverside Laboratories, which has absolutely no relationship, business or otherwise, with the Manhasset Chemical Co., Inc."

This entire incident is so typical of the way in which proprietary interests promote as nostrums in various diseases the use of well established medicaments that physicians will wonder why THE JOURNAL has devoted this space to a meticulous account of the process. The answer lies in the colossal impudence of the company as exemplified by its attempts to urge its product on the governors of various states and by the use of the name of the Associated Press in furthering the exploitation. Meanwhile, the Bureau of Investigation of the American Medical Association will add the name of another bromide preparation to its list of nostrums for persons with epilepsy.

Current Comment

SALIVARY ANTITOXIN

While numerous studies have been made of the antibody content of urine and milk, almost no data are at present available as to the possible specific immunologic rôle of the digestive secretions. A promising beginning has been made in such study, however, by Sugg and Neill [1] of Vanderbilt University, who currently report that the saliva of normal individuals "naturally" immune to diphtheria contains measurable quantities of diphtheria antitoxin. The antitoxin titer of the mixed saliva apparently bears a fairly constant ratio to the serum titer, the amount of antibody annually secreted by an individual being approximately 25 per cent of his total humoral immunity. This would constitute an important loss of "natural" immunity, unless it can be shown that there is a physiologic reabsorption of this swallowed antitoxin. The mechanism of this apparent salivary secretion has not yet been determined. It is, of course, possible that the saliva itself is not the main source of the salivary antitoxin but that the apparent secretion is in reality a prophylactic transudate from the tonsils or other buccal surfaces. It will be interesting if such a tonsillar function is eventually demonstrated.

NATHAN PORTER COLWELL, SECRETARY OF THE COUNCIL ON MEDICAL EDUCATION, RETIRED

By action of the Board of Trustees, at its last session in Chicago, September 18, Dr. Nathan Porter Colwell, since 1906 secretary of the Council on Medical Education of the American Medical Association, has been retired. In its action the Board authorized the conveyance to Dr. Colwell of its appreciation of his great service to medical education. Through the annual reports of the Council to the Board of Trustees, through the State Board and Educational numbers of THE JOURNAL, and through his numerous contributions to the subject of medical education, the medical profession is familiar with what has been accomplished by the Council since its inception. In that accomplishment no small part of the credit must be assigned to Dr. Colwell. As secretary of the Council he bore a large share of the responsibility for direct investigation and report on medical schools, for guiding the trend of discussions at the annual conferences, for setting forth clearly the facts so that all who were interested might base their judgments on the same statistics. No argument was more convincing, no statement more important, than this annual publication of progress made or impetus lost. The figures were all the stimulus that the weaker institutions needed to bring them upward to an acceptable status. Dr. Colwell leaves his work at a high peak, with the vast majority of medical schools and hospitals possessed of a high standing and eager to go forward to still higher ideals and accomplishments. In the Board of Trustees' acknowledgment to him the medical profession will join heartily.

1. Sugg, J. Y., and Neill, J. M.: J. Immunol. 20: 463 (June) 1931.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 9:15 a. m. on Monday and 10:30 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 12. Communicable Diseases in the Home.
October 17. Gentle Sleep.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday and Saturday, from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

October 12. Getting Along With People.
October 14. Shall We Eat Meat?
October 17. What Troubles Your Mind?

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—Drs. Benjamin H. Hager and Robert V. Day addressed the Los Angeles County Medical Association, October 1, on "Carcinoma of the Prostate" and "Bilateral Kidney Stones," respectively. Dr. Robert W. Langley reported on a study of hypertension.——William B. Herms, professor of parasitology, University of California, Berkeley, addressed the Pasteur Society of Central California, October 7, on "Relation of Entomology to Public Health with Emphasis on the Transmission of Relapsing Fever."——The meeting of the San Francisco County Medical Society, October 13, will be addressed, among others, by Drs. Myrl Morris and Huldah E. Thelander on "Mastoiditis in Early Infancy" and "Evaluation of Present Methods of Diphtheria Prophylaxis," respectively.

Research Supported by Students.—It was recently announced that the Associated Students of the University of California have turned over to the university an additional $1,500 from last year's football profits for the continued support of research on the cause and cure of epidermomycosis, commonly known as "athlete's foot." The work is being done by Dr. Robert T. Legge, medical director of the Cowell Memorial Hospital, Berkeley, Dr. H. J. Templeton of the hospital staff, and Lee Bonar, Ph.D., assistant professor, department of botany. The research last year was also financed by the Associated Students of the University of California. It was pointed out that in reaching this decision the executive committee of the organization made it known that the policy is to use football profits not required for the support of athletics and physical education for other projects of fundamental value to the university and to the state.

DELAWARE

State Medical Meeting at Wilmington, October 13-14.—The one hundred and forty-second annual meeting of the Medical Society of Delaware will be held at Wilmington, October 13-14, with headquarters at the Hotel Du Pont and under the presidency of Dr. George C. McElfatrick. The program will consist of papers by James L. Weatherwax, Philadelphia, on "Radium and Deep X-Ray Therapy" and Drs. Ira Burns, Wilmington, on "Clinical Results of Radium Therapy in Wilmington General Hospital"; William Edward Chamberlain, Philadelphia, "X-Ray Examination of the Sacro-Iliac Joint"; William Wertenbaker, Wilmington, "A New Method of Performing the Radical Cesarean Operation" (motion picture); Joseph C. Bloodgood, Baltimore, "Modern Treatment of Cancer"; Morris Fishbein, Chicago, editor of THE JOURNAL, "The Frontiers of Medicine"; Bartholomew M. Allen, Wilmington, "X-Ray Diagnosis of the Chest with Special Reference to Fluid"; Henry O. Reik, Atlantic City, N. J., "Shall the Profession Undertake Control of Specialization in Medicine?"; William Wayne Babcock, Philadelphia, "Diagnosis and Treatment of Carcinoma of the Large Intestine"; James M. H. Rowland, Baltimore, "Obstetrical Hemorrhage"; Arthur C. Jost, Dover, "Relations of Delaware Public Health to Indigent Syphilitic Cases"; Earl D. Bond, Philadelphia, "Post-encephalitic Disorders and Their Relation to General Practice"; Joseph McFarland, Philadelphia, "Malignant Diseases of the Breast"; Irvine M. Flinn, Jr., Wilmington, "Backache," and Clyde R. Bennett, Farnhurst, "The Psychiatric Observation Clinic in Delaware." Dr. Edward Starr Judd, Rochester, Minn., President, American Medical Association, will address the session.

GEORGIA

Society News.—Dr. Benjamin T. Beasley spoke on "Chorionepithelioma and Hydatidiform Mole" before the Fulton County Medical Society, Atlanta, October 1.——The Fifth District Medical Society will be addressed, October 21, among others, by Drs. Edgar G. Ballenger on "Prevention and Treatment of Acute Gonorrheal Urethritis"; Marion C. Pruitt, "Terminal Bowel as a Focus of Infection," and Charles W. Roberts, "Estimation of Post-Traumatic Industrial Disability."——Charles C. Rife, D.V.M., addressed the Fulton County Pediatric Society, October 8, on rabies.

ILLINOIS

Society News.—"Mental Hygiene and Its Relation to the General Practitioner" was the subject discussed by Dr. Paul L. Schroeder, Chicago, before the Randolph County Medical Society, September 10.——Dr. Francis E. Senear, Chicago, addressed the Peoria City Medical Society, October 6, on "Modern Conceptions Concerning the Treatment of Syphilis."

Chicago

Sir Thomas Lewis to Give Billings Lecture.—Sir Thomas Lewis, London, will give the first Frank Billings Lecture of the Thomas Lewis Gilmer Foundation, October 31, on "Pain in Muscular Ischemia and Its Relation to Anginal Pain." This will be a regular meeting of the Institute of Medicine of Chicago.

Society News.—Dr. Sumner L. S. Koch addressed the Chicago Society of Industrial Medicine and Surgery, October 7, on "Treatment of Tendon Injuries."——Dr. Augustus C. Pohlman, St. Louis, gave an illustrated address on "Anatomic Fundamentals of the Mechanics of Audition," before the Chicago Laryngological and Otological Society, October 5.——Dr. Joseph Colt Bloodgood, Baltimore, addressed the Chicago Dental Society, October 8, on "Oral Cancer."

Dr. Whipple Delivers Bevan Lecture.—Dr. Allen O. Whipple, professor of surgery, Columbia University College of Physicians and Surgeons, New York, addressed the Chicago Surgical Society in joint session with the Institute of Medicine of Chicago, October 2, on "Anatomical and Physiological Variations in the Duodenum Considered from Embryological and Clinical Standpoints." This was the third annual Arthur Dean Bevan Lecture of the Chicago Surgical Society.

Personal.—Dr. Max Cutler, formerly director of cancer research, division of cancer, Department of Hospitals, New York, has been appointed director of the recently established tumor clinic at Michael Reese Hospital. The formal opening of the clinic took place, October 9, at which time the Louis A. Greensfelder Memorial Lectureship was given (THE JOURNAL, September 26, p. 935).——Dr. Bernard Fantus has been appointed professor of therapeutics at the University of Illinois College of Medicine.

Joseph A. Capps Prize.—The Institute of Medicine of Chicago is offering a prize of $500 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be in one of the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of Chicago medical schools who have received their M.D. degrees during the year 1929 or thereafter. The manuscript must be submitted to the secretary, Institute of Medicine of Chicago, 122 South Michigan Boulevard, not later than December 31. The winner of the prize will be expected to present the results of his investigation before the institute at some meeting in 1932, the time to be later designated. If no paper presented is deemed worthy of the prize, the award may be withheld at the discretion of the board of governors.

INDIANA

Society News.—Dr. Max A. Bahr, Indianapolis, addressed the Tippecanoe County Medical Society at La Fayette, September 10, on psychoanalysis with a report of a case of hysteria. ——Dr. Joseph H. Clevenger, Muncie, addressed the Delaware-Blackford County Medical Society, September 15, on the treatment of burns.

Dr. Gatch Appointed Acting Dean.—Dr. Willis D. Gatch, professor of surgery, has taken over the duties of acting dean of Indiana University School of Medicine for the school year 1931-1932. Dr. Charles P. Emerson, the dean, has been given leave of absence to spend about ten months in the Far East as a member of a commission which will appraise and evaluate facts on foreign missions. Dr. Henry S. Houghton, dean of the State University of Iowa College of Medicine, Iowa City, is also a member of the commission. Frederic Woodward, LL.D., vice president and dean of faculties of the University of Chicago, is vice chairman and head of the group, which sailed, September 29. Dr. Emerson and Dr. Houghton will pay particular attention to the medical missions, schools and hospitals of the Asiatic countries.

IOWA

Society News.—Dr. Andrew B. Rivers, Rochester, Minn., addressed the Waterloo County Medical Society, September 15, on "Causes of Gastro-Intestinal Hemorrhages."——Dr. Ray R. Harris, Dubuque, addressed the Jackson County Medical Society, September 17, at Lakehurst, on "Hand Injuries and Their Treatment." A symposium on peptic ulcer was also presented, the speakers being Drs. Horace M. Korns and Frank R. Peterson, Iowa City.—— The Johnson County Medical Society was addressed, October 7, by Avery E. Lambert, Ph.D., and Dr. Harry P. Lee, Iowa City, on "Histogenesis of the Red Blood Cells" and "Intravenous Urography," respectively. ——Dr. Morgan J. Foster, Cedar Rapids, addressed the Linn County Medical Society, October 8, on intussusception, and Dr. Isaac A. Abt, Chicago, anterior poliomyelitis.

KANSAS

Personal.—Dr. Claude P. Fryer, formerly of Maryville, Mo., assumed his duties as field agent of the U. S. Public Health Service and health officer of Brown County with headquarters at Hiawatha, September 16. Dr. Fryer had been health officer of Nodaway County (Mo.) for the last nine years.

Society News.—The Wyandotte County Medical Society was addressed, September 15, by Drs. Ernest R. Parker on "Pyelonephritis" and Lewis G. Allen, "Position of X-Ray and Radium Therapy in Modern Medicine." A joint meeting of the society with the Jackson County Medical Society, October 6, was addressed by Dr. Edward Starr Judd, Rochester, Minn., on "Function of the County Medical Society in the General Plan of the American Medical Association."

MAINE

Hospital News.—Dr. Joelle C. Hiebert, Boston, has been appointed superintendent of the Central Maine General Hospital, Lewiston, succeeding Dr. Lewis F. Baker. A new wing of this hospital was dedicated, July 24.

Society News.—Dr. William P. Murphy, Boston, addressed the Washington County Medical Society, Calais, July 30, on diagnosis and treatment of pernicious and secondary anemias, and Dr. Clifford D. Harvey, Boston, on acute conditions in the abdomen.

MARYLAND

Faculty Changes at University of Maryland.—The following promotions in the faculty, among others, have recently been announced by the University of Maryland School of Medicine:

Dr. William H. Toulson, to professor of genito-urinary diseases.
Dr. Nathan Winslow, to professor of clinical surgery.
Dr. Page Edmunds, to professor of clinical and industrial surgery.
Dr. Walter D. Wise, to professor of clinical surgery.
Dr. Frank S. Lynn, to professor of clinical surgery.
Dr. Elliott H. Hutchins, to professor of clinical surgery.
Dr. Charles Reid Edwards, to professor of clinical surgery.
Dr. Harry M. Robinson, to professor of clinical dermatology.
Dr. James Dawson Reeder, to clinical professor of diseases of the colon and rectum.
Dr. Charles C. Hahliston, to associate professor of medicine.
Dr. Ralph C. P. Truitt, to associate professor of psychiatry.
Dr. Herbert M. Foster, to associate professor of surgery.

New Department of Neurosurgery.—The organization of a department of neurosurgery was recently announced by the University of Maryland School of Medicine. Dr. Charles Bagley, Jr., will be in charge of the new division and Dr. Richard G. Coblentz will be associate in neurosurgery. Dr. Bagley was formerly associated with Dr. Harvey Cushing at the Peter Bent Brigham Hospital, Boston, and during the World War was with the section on brain surgery in the surgeon general's office in Washington. Recently he has been associated with Dr. Adolf Meyer at the Johns Hopkins Hospital in experimental neurology. The resignation of Dr. Robert W. Johnson, Jr., as professor of orthopedic surgery was also announced. He will be succeeded by Dr. Allen Fiske Voshell, associate professor of orthopedic surgery at the University of Virginia Medical Department, Charlottesville.

Full Time Health Service Extended.—Seventeen counties in Maryland now have full time health service. This total was reached recently when Garrett, Dorchester and Worcester counties were added to the list. Dr. Edgar A. P. Jones, formerly deputy state health officer for Caroline and Dorchester counties, was appointed health officer of Dorchester County. Dr. Bradford Massey, who was appointed to a similar position in Worcester County, had previously been deputy state health officer for Somerset and Worcester counties. Dr. George E. Clarke is the health officer for Garrett County. For the last two years he has been engaged in public health work in Washington, D. C. In addition to the seventeen counties that have full time service, Charles and St. Mary's counties form a sanitary district and share jointly in the services of a deputy state health officer. The remaining counties with part time service are Howard, Caroline, Queen Anne's and Somerset. The first step toward full time health service in the state was the establishment of sanitary districts in 1914. The first full time county health department was formed in 1922 in Allegany County.

MASSACHUSETTS

Society News.—Dr. Cadis Phipps, Boston, addressed the Bristol North District Medical Society, Mansfield, September 17, on "Management of Ambulatory Cases of Heart Disease." ——Clarence C. Little, LL.D., Bar Harbor, Me., will address the Worcester District Medical Society, October 14, on "Recent Advances in the Etiology and Treatment of Cancer."——The headquarters of the Massachusetts Medical Society, including the offices of the *New England Journal of Medicine*, have been moved into a new addition to the building of the Boston Medical Library, 8 the Fenway, Boston.

Meetings of Harvey Medical Society.—The William Harvey Society, which was founded by the students of Tufts Medical School, Boston, to further interest in medicine, recently announced the program for forthcoming meetings:

November 25: Dr. Chevalier Jackson, Philadelphia, "Bronchoscopy in the Prophylaxis of Diseases of the Lung," illustrated.
December 11: Dr. Hans Zinsser, professor of bacteriology and immunity, Harvard University Medical School, "The Lesson to Be Derived for Education in General from Recent Changes in Medical Education."
January 8: Hon. James M. Curley, mayor of Boston, "What the City of Boston Is Doing to Promote the Public Health."
February 12: Dr. Stanley Hart Osborn, commissioner of health of Connecticut, Hartford, "Problems of and Opportunities in Public Health."
March 11: Dr. Walter B. Cannon, George Higginson professor of physiology, Harvard University Medical School, "Vivisection and Animal Experimentation."
April 8: Dr. George W. Crile, Cleveland, "Biologic Indications for and End-Results of Denervation of the Adrenal Gland."
May (date not announced): Dr. Fred H. Albee, professor of orthopedic surgery, New York Post-Graduate Medical School, "Bone-Graft Surgery."

Dr. Russell L. Cecil, assistant professor of clinical medicine, Cornell University School of Medicine, addressed the society, October 9, on "The Bacteriologic Point of View." This talk was supplemented with an illustrated lecture on arthritis.

MICHIGAN

State Medical Election.—Dr. Carl F. Moll, Flint, was installed as president of the Michigan State Medical Society at its annual meeting in Pontiac, September 22-24, and Dr. James Milton Robb, Detroit, was made president-elect. The next annual meeting of the association will be held in Kalamazoo.

Society News.—Dr. Harry A. Pearse, Detroit, addressed the Lenawee County Medical Society, September 15, on "Pathologic Obstetric Conditions in Regard to Dystocia."——Dr. John E. Gordon, Detroit, addressed the Gratiot-Isabella-Clare County Medical Society, September 17, on "Clinical Aspects of Poliomyelitis."——"Prophylactic Obstetrics" was the subject of Dr. Magnus P. Urnes, Chicago, before the Calhoun County Medical Society, October 6. A motion picture with sound on "Low Cervical Cesarean Section" was shown at this meeting.

Children's Clinic Affiliates with University.—The Northern Michigan Children's Clinic at Marquette will be operated as a branch of the University of Michigan Hospital

under an agreement between the trustees of the clinic and the university approved by the board of regents, it was announced, September 27. The clinic represents a cooperative undertaking involving the University of Michigan Post Graduate Medical Department, St. Luke's Hospital and the Children's Fund. Children who are state wards will be treated at Marquette or moved to Ann Arbor if the equipment of the University Hospital is needed. Children of nonindigent parents will be received at the University Hospital on request of family physicians. It was said that the arrangement will reduce the cost of hospitalization to the state, and permit the university to extend its services to the people of the upper peninsula. The Northern Michigan Children's Clinic was opened last June (THE JOURNAL, June 27, p. 2218).

NEVADA

State Medical Election.—At the annual meeting of the Nevada State Medical Association, September 19, Dr. Amos C. Olmsted, Wells, was installed as president and Dr. Ontie Hovenden, McGill, was chosen president-elect. Dr. Horace J. Brown, Reno, is secretary. The next annual session will be held at Reno, Sept. 23-24, 1932.

NEW JERSEY

Outbreak of Typhoid.—Following the discovery of nine cases of typhoid, the Wanaque Board of Health issued a proclamation, September 21, barring children under 16 years of age from the streets and highways of the borough of Wanaque. Persons under 18 years were also forbidden to attend public or private gatherings. It was stated that most of the typhoid was found in one section of the borough.

NEW YORK

Society News.—The Medical Society of the County of Albany, meeting September 23, heard the following Albany speakers: Dr. John A. Sampson, on peritoneal cancer; Henry L. K. Shaw, the local epidemic of poliomyelitis, and Thomas O. Gamble, ten years of obstetrics.——At the annual meeting of the third district of the Medical Society of the State of New York, Sharon Springs, September 16, speakers were Drs. Smith Ely Jelliffe, New York, "Mental Apparatus and Internal Medicine"; Russell L. Cecil, New York, arthritis, and Thurman B. Givan, Brooklyn, congenital syphilis.

New York City

First Harvey Lecture.—The first Harvey Society Lecture of the winter season will be given by Wilbur W. Swingle, Ph.D., professor of biology, Princeton University, Princeton, N. J., at the New York Academy of Medicine, October 15, on "The Hormone of the Suprarenal Cortex."

The Sir Robert Jones Lecture.—Dr. William Edward Gallie, professor of surgery and clinical surgery, University of Toronto Faculty of Medicine, Toronto, will give the second Sir Robert Jones Lecture, October 13, at the Hospital for Joint Diseases, on "Further Advances in the Use of Living Sutures."

Society News.—Drs. Elis Berven, Stockholm, Sweden, and Henri Coutard, Paris, gave addresses at Mount Sinai Hospital, September 28, on treatment of malignant disease and roentgen diagnosis of tumors, respectively.——A symposium on after-care of poliomyelitis featured the meeting of the Bronx County Medical Society, September 16; the speakers were Drs. James P. Leake, U. S. Public Health Service; Joshua H. Leiner, and Samuel W. Boorstein.——Dr. John J. Moorhead addressed the Medical Society of the County of Kings at its first autumn meeting, October 2, on "The Practice of Traumatic Surgery."

Graduate Courses at Mount Sinai Hospital.—A group of medical courses for qualified graduates in medicine will be offered by the extension division of Columbia University in cooperation with Mount Sinai Hospital, beginning October 29 and extending to December 24. The work will include courses in general medicine, gastro-enterology, diseases of the chest, pediatrics, neurology and psychiatry, gynecology, ophthalmology, dermatology, radiography, physical therapy and laboratory methods. Officers of instruction will be members of the hospital staff. Part of the time will be spent in theoretical discussion and part in demonstration and examination of patients. Further information may be obtained from the secretary of the committee on medical instruction at the hospital, One Hundredth Street and Fifth Avenue, New York.

Report on Air Pollution.—There is an air pollution problem in New York and other cities which is a serious menace to health, according to a report of the committee on public relations of the New York Academy of Medicine. About four tons of the solids of smoke, including soot, are deposited each month on every square mile of the city, it is reported. According to the New York *Times*, Dr. Wynne announced that, as a result of the activities of the St[illegible] Abatement Commission, which has been combating air pollution for thirteen months, and the findings of its trial board each Monday morning, air pollution by smoke in New York had been abated by more than 60 per cent. The study was carried on by a subcommittee of the committee on public relations, consisting of Dr. Conrad Berens, chairman; Dr. Wesley C. Bowers, Dr. Alfred F. Hess, Dr. Grant Thorburn, and E. H. Lewinski-Corwin, Ph.D.

Analysis of Poliomyelitis Epidemic.—A study of the first 500 cases of poliomyelitis reported from Brooklyn in the recent epidemic has been completed by the bureau of health education of the department of health. In 469 cases it could not be proved that the victims had been in contact with the disease. Housing and general conditions in the home apparently had little to do with the etiology, the investigators concluded, as 405 cases occurred in homes rated as good or fair. Young children were most frequently attacked, 339 of the 500 victims being between 1 and 5 years old and 98 between 5 and 9. Of the 500 cases studied, 328 were in children of American parents; 64, Italian; 43, Russian; 15, Polish, and 14, Austrian. A new study is to be made of the 364 cases first reported in an effort to trace the source of the infection. A record will be made of the activities of the patients, their parents and relatives during the three weeks prior to the attack of poliomyelitis, including any information tending to link them up with a possible contact. A study of cases at the Willard Parker Hospital has shown that paralysis developed in only 17.5 per cent of the cases that were recognized in the preparalytic stage. Probable explanations of the low incidence, as reported to the health department by officials of the hospital, were earlier recognition and treatment, recognition of a larger number of cases that formerly escaped diagnosis, and the mild nature of the present outbreak. Two new pamphlets have been prepared by the health department, one on "How to Care for Infantile Paralysis Patients," which will be sent to homes in which the disease has occurred; the other, a reprint of "Muscle Training in Infantile Paralysis," by permission of Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, which, it is believed, will be of value to physicians. From January 1 up to October 2 there had been 3,823 cases with 436 deaths.

NORTH CAROLINA

Society News.—Dr. Julian D. Hart, Durham, read a paper on skin transplantation before the Buncombe County Medical Society, Asheville, August 17. The society was addressed, August 3, by Dr. Paul A. McIlhenny, New Orleans, on arthritis.——Dr. Christopher Johnston, Durham, addressed a recent meeting of the Gaston County Medical Society, Gastonia, on "Complications of Diabetes."——Drs. Claiborne T. Smith, Rocky Mount, and Sidney S. Smith, Jr., Raleigh, addressed the Fourth District Medical Society, Wilson, August 11, on "Thrombocytopenic Purpura" and "Pyelonephritis," respectively.

OHIO

Society News.—The fall meeting of the Central Tri-State Medical Society (Kentucky, Ohio and West Virginia) was held at Portsmouth, September 17, with the following speakers: Drs. Edgar M. Freese, Columbus, on "Prevention and Treatment in Industrial Practice"; Arthur M. Mendenhall, Indianapolis, "Recent Advances in Obstetrics"; John F. Erdmann, New York, "Diverticulitis and Diverticulosis," and William A. Hudson, Detroit, "Motor Phenomena of the Tracheobronchial Tree."——Dr. Myron H. Powelson, Zanesville, addressed a joint meeting of the medical societies of Hocking, Athens and Perry counties, Logan, September 16, on "Occlusive Vascular Diseases."——Dr. Ray W. Kissane, Columbus, addressed the Knox County Medical Society, Mount Vernon, September 24, on "Relation of Personal Habits to Adult Heart Disease."——Dr. Elijah J. Gordon, Columbus, addressed the Montgomery County Medical Society, October 2, on periodic health examination.——Dr. John A. Fisher, Cincinnati, addressed the Fayette County Medical Society, Washington Court House, October 1, on hematuria.

PENNSYLVANIA

Society News.—Four Philadelphia physicians will conduct clinics at the annual fall clinical meeting of the Fayette County Medical Society, Uniontown, October 22, as follows: Drs. Henry L. Bockus, gastro-enterology; George M. Piersol, internal medicine; Harry B. Wilmer, allergic diseases, and John

Eiman, pathology.——Dr. Jacob F. Crane, Warren, addressed the Warren County Medical Society on "Toxemias of Pregnancy" in August.

Philadelphia

University News.—Every freshman reporting at the University of Pennsylvania for the fall term received a complete physical examination, the first activity of the student health service opened this year under the direction of Dr. Harry D. Lees. If the examination disclosed defects in a student so serious as to render it unwise for him to continue the university course, he was to be advised in time to make the necessary adjustment before the opening of classes. All defects were recorded and efforts will be made to have these corrected.

Personal.—Dr. Elmer H. Funk has been appointed to the Sutherland M. Prevost chair of therapeutics, materia medica and diagnosis at Jefferson Medical College to succeed the late Dr. Hobart Amory Hare.——Dr. Edward A. Schumann has been appointed surgeon-in-chief of the Kensington Hospital for Women, succeeding the late Dr. Harry C. Deaver.——Dr. Clarence R. O'Crowley, Newark, N. J., has been appointed assistant professor of urology at the University of Pennsylvania Graduate School of Medicine.

Society News.—Five physicians will address the Philadelphia County Medical Society at its first scientific meeting of the year, October 14, as follows: Drs. Ralph M. Tyson, "Medical Management of Infantile Paralysis"; Harry Hudson, "Surgical and Physical Management of Infantile Paralysis"; Basil R. Beltran, "Injection Treatment of Varicose Veins"; Claude P. Brown, "Why Vaccine Therapy May Fail," and John O. Bower, "Appendicitis Mortality."——Speakers before the Obstetrical Society of Philadelphia, October 1, were Drs. Franklin L. Payne, "Investigation of Sterility"; Charles C. Norris and Douglas P. Murphy, "End-Results in Ninety-Three Cases of Carcinoma of the Ovary," and Floyd E. Keene and Robert A. Kimbrough, Jr., "End-Results in Cases of Carcinoma of the Cervix Uteri Treated from 1913 to 1926."——Marjory Stephenson, of the Medical Research Council of England, addressed the Pathological Society of Philadelphia, October 8, on "Problems of Bacterial Respiration."——At a meeting of the Philadelphia Roentgen Ray Society, October 1, Prof. Dr. Fedor Haenisch, Hamburg, Germany, showed motion pictures demonstrating fire tests of x-ray films.

RHODE ISLAND

Society News.—Dr. Carl D. Sawyer, Providence, addressed a recent meeting of the Washington County Medical Society, Westerly, on "Common Skin Diseases and Their Treatment."——At the meeting of the Providence Medical Association, October 5, four speakers discussed "The Diseased Gallbladder," Drs. Harvey E. Wellman, the clinical problem; Philip Batcheldor, the radiologic aspect; Benjamin Earl Clarke, the pathology, and Arthur T. Jones, the treatment.

TENNESSEE

Diploma Lost.—The University of Tennessee College of Medicine, Memphis, reports that the medical diploma issued to Dr. Wilbur Clifton Batson, June 2, 1930, has been lost at his home in Cunningham. A duplicate has been issued to Dr. Batson, who now lives in Westwood, Calif.

Health at Knoxville.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended September 26, indicate that the highest mortality rate (20.1) appeared for Knoxville, and the rate for the group of cities as a whole, 9.8. The death rate for Knoxville for the corresponding period last year was 7.3, and for the group of cities, 10.5. The annual rate for eighty-two cities was 12.1 for the thirty-nine weeks of 1931, as against a rate of 12 for the corresponding period last year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

Society News.—Drs. John C. King and Cecil E. Warde addressed the Memphis and Shelby County Medical Society, Memphis, August 4, on "Fever as a Therapeutic Agent" and "Vaginal Delivery After Cesarean Section," respectively.——Metabolism and hypertension were the subjects discussed by Dr. Robert B. Wood, Knoxville, before the August meeting of the Hamblen County Medical Society.——Drs. William D. L. Record and William A. Reed addressed the Hamilton County Medical Society, Chattanooga, September 24, on "Surgery of the Rectum" and "State Medicine," respectively. "Qualification of an Expert and Non-Expert Witness" was the subject of Dr. Jesse B. Swafford before the society, September 10, and hypertension that of Dr. William E. Vaden.——"Borderline Pathology and Oral Surgery" was the subject of Howard M. Taylor, D.D.S., Memphis, Tenn., among others, before the Tri-County Medical Society (Hancock, Claiborne, Union counties), August 24.——Among others, Dr. Gilbert J. Levy, Memphis, addressed the Henderson, Chester and Decatur Counties Medical Society, August 13, on "Serum Therapy and Reactions in Communicable Diseases."——Dr. Robert B. Wood, Knoxville, among others, addressed the Roane, McMinn, Monroe and Loudon County Medical Society in Lenoir City, September 3, on "Myocardial Failure."——The Robertson County Medical Society was addressed in Springfield, August 18, by Drs. John M. Lee and Carl S. McMurray, Nashville, on "Throat Infections in Infants and Children" and "Endocrinology in Gynecology," respectively.——Dr. Edward H. Barksdale addressed the Nashville Academy of Medicine, September 29, on "Excessive Frequency of Urination."——Dr. William D. Haggard, Nashville, among others, addressed the East Tennessee Medical Association, Greeneville, September 29, on "Management of the Toxic Thyroid."

UTAH

Society News.—Dr. Robert C. Coffey, Portland, Ore., read a paper on "The Field of Usefulness of Gauze Drainage and the Quarantine Pack in Connection with Abdominal and Pelvic Surgery," before the Weber County Medical Society, recently.

State Medical Election.—Dr. Richard A. Pearse, Brigham, was installed as president and Dr. Frank M. McHugh, Salt Lake City, was chosen president-elect of the Utah State Medical Association at its meeting in Salt Lake City, September 10. Other officers elected were Drs. George M. Fister, Ogden, John G. McQuarrie, Richfield, and George H. Christy, Vernal, vice presidents; Leland R. Cowan, Salt Lake City, secretary, and Franklin H. Raley, Salt Lake City, treasurer. The 1932 session will be held in Ogden.

WASHINGTON

Personal.—Dr. Edgar F. Dodds, Tacoma, has been appointed Pierce County health officer.——Dr. Robert N. Hamblen, Spokane, was elected president of the Public Health League of Washington at its eleventh annual meeting in Aberdeen, August 4.

Society News.—Three Tacoma physicians addressed the King County Medical Society, Seattle, October 5, as follows: Drs. Horace J. Whitacre, "The Problem of Organized Medicine"; Wilmot D. Read, "Economic Questions Within the Profession," and Warren B. Penney, "Responsibility of the Individual Doctor in Meeting Organization Requirements."

H. H. Harvey Works Under an Alias.—Thomas Nelson & Sons, New York book publishers, report that they have received information indicating that one C. R. Mathison, now representing that firm in the Northwest, is H. H. Harvey, who was recently reported to be posing as a representative of the W. F. Prior Company, Baltimore (THE JOURNAL, September 19, p. 860). Pending further investigation, the Nelson firm has ordered Mathison to discontinue work and to return samples and credentials.

WISCONSIN

Society News.—Drs. Ray C. Blankinship and Robin C. Buerki, both of Madison, addressed the Waupaca County Medical Association, Clintonville, September 24, on "Gastro-Intestinal Conditions" and "Relationship of the General Hospital to the State," respectively.——Drs. Rosco G. Leland, Chicago, William A. O'Brien and Charles B. Wright, Minneapolis, discussed periodic health examinations at a meeting of the Polk County Medical Society, with the medical societies of the surrounding counties as guests, September 25, at Osceola.——Drs. Wellwood M. Nesbit and Edwin F. Schneiders, Madison, addressed the Marathon County Medical Society, Wausau, August 25, on "Headaches of Nasal Origin" and "Precancerous and Cancerous Lesions of the Uterine Cervix," respectively.

GENERAL

Conference for Control of Opium.—Members of the League of Nations conference on limitation of the manufacture of narcotic drugs, which met in Geneva from May to July (THE JOURNAL, May 9, p. 1623, and August 15, p. 471), at the end of deliberations during which an international convention governing the manufacture of narcotics was elaborated, set in motion plans for a later conference on the limitation and control of opium. It was recommended that the league's opium

advisory committee and the league's secretariat be instructed to set to work at once to collect and coordinate material necessary for the adequate preparation of the conference.

Rat-Proofing of Ships.—For several years the U. S. Public Health Service has been developing the principles and technic of rat-proofing vessels effectively. This work has been placed on such a firm basis, it is reported, that the details and specifications are now standardized. These specifications have also been adopted and promulgated by the American Marine Standards Committee as Marine Standard number H-41, the observation of which is mandatory for construction of new ships with government loan aid. It was found that, if the nesting places and harborages for rats were eliminated, the possibility of rats finding a place to colonize on board ship would be greatly diminished and the ship would therefore be less likely to spread rat-borne diseases. A recent publication issued by the U. S. Public Health Service, dealing with the rat-proofing of vessels, contains illustrations and drawings together with general instructions for the rat-proofing of ships.

Prevalence of Communicable Diseases.—Newspapers reported, September 19, that the epidemic of typhoid at the state hospital for the insane, Cleveland, was under control, as no new cases had been reported for three days. At that time nine deaths had occurred and 118 of the 132 patients stricken were still under treatment. All beaches in Cleveland were closed by the health department, as sewage from the institution goes into Lake Erie. Dr. Harry G. Southard, state health commissioner of Ohio, advocated inoculation of all state wards to avoid similar epidemics in the future. ——There were seventeen cases of typhoid in Detroit in September, many of which were the result of swimming in the Detroit River at forbidden places, according to the health department.——Twenty-five cases of typhoid reported from the village of Mingo Junction, Ohio, led the state health department to send an investigator to study the milk and water supply for the source. —— The Irvine-McDowell Hospital, Richmond, Ky., was placed under quarantine, September 25, after a woman and child admitted for treatment for trachoma were found to have smallpox. The thirty-seven patients and attendants at the hospital, an institution for treatment of trachoma, were immediately vaccinated. —— Diphtheria is reported to be epidemic in several Kentucky counties: twenty-two cases in Muhlenberg, twelve in Ohio and several each in Knox and Laurel counties. Twenty-five cases, with four deaths, were reported, September 25, from Greene County, Ga. An epidemiologist from the state board of health immunized nearly 2,000 children in the county.——Infantile paralysis continues to be reported sporadically. The state legislature of New York appropriated $115,000 as a special fund to fight permanent paralysis in victims of the recent epidemic in the state. Smith College, Northampton, Mass., delayed the opening of the school year to October 12, because of the presence of the disease in the Connecticut Valley. Thirty-two students in a fraternity house at the University of Illinois were placed under quarantine, September 26, after the death of a student. Other cases did not develop.

CANADA

Hospital at Edge of Arctic Circle.—It is planned to open a hospital at Chesterfield Inlet, 500 miles north of Churchill, Manitoba, to be in charge of Bishop Turquetil and four nurses who are members of a religious order. This will be the farthest north hospital on the North American continent. The hospital will serve the nomadic Eskimos, the hunters and prospectors. It is also planned that educational courses in hygiene will be given to the Eskimo children.

Beriberi in Newfoundland.—An outbreak of beriberi involving more than 600 persons has been reported from Newfoundland. The appearance of the disease is attributed to the failure of the fishery on the southern coast last year, as a result of which the fishermen lived on an exclusive diet of white bread. It is said that they refuse to eat whole wheat bread. The Newfoundland board of health has issued a bulletin dealing with the symptoms and urging the use of whole wheat flour and green food to avoid the disease.

Society News.—Among speakers at the annual meeting of the New Brunswick Medical Society, Campbellton, July 14-15, were three Boston physicians: Drs. W. Russell MacAusland, on "Progress in Treatment of Fractures"; Richard B. Cattell, "Diagnosis and Treatment of Carcinoma of the Rectum," and Louis E. Phaneuf, "Physiotherapy."——Drs. George S. Young and William B. Hendry, Toronto, were guest speakers at the annual meeting of the Medical Society of Nova Scotia, Truro, in July, on "Mental Aspects of Disease" and "Antenatal and Postnatal Care," respectively.

University News.—Dr. Alvin T. Mathers has been appointed dean of the Medical Faculty of the University of Manitoba to succeed the late Dr. Samuel W. Prowse. Robert G. Inkster, demonstrator of anatomy at the University of Leeds, has been appointed professor of anatomy.——Two gifts to aid research have recently been presented to McGill University, Montreal, by Mrs. Blanche Hutchinson, Baie d'Urfe, Que.: one of $10,000 to be used by the department of psychiatry in connection with the work of Dr. David Slight, the other of $4,000 to further the research of Dr. Maurice Brodie on infantile paralysis.

Campaign Against Maternal Mortality.—Realization that the maternal death rate of Toronto is higher than that of the province or that of the entire dominion led representatives of women's organizations and health and social agencies of the city to undertake an intensive campaign to teach women the importance of prenatal care. A special committee on maternal welfare has adopted a program including organization of a speakers' bureau whose services are offered to all clubs and groups in the city; a series of radio broadcasts; research to collect and interpret information on the situation, and a pageant on motherhood to be presented as a conclusion to the period of intensive campaigning, the *Canada Lancet and Practitioner* reports. The Toronto Academy of Medicine, it was pointed out, was asked to cooperate.

FOREIGN

Medical Lectures for Travelers.—A series of eight lectures on tropical hygiene for persons outside the medical profession who are going to the tropics is to be given, October 21-30, by Lieut.-Col. George E. F. Stammers, at the London School of Hygiene and Tropical Medicine. The instruction will include accounts of more common diseases, with advice on measures of protection and guidance in simple methods of treatment. Further information may be obtained from the secretary of the school, Keppel Street, Gower Street, London, W. C. 1.

Faraday Centenary.—The *British Journal of Physical Medicine* devoted its September issue largely to discussion of Michael Faraday, in honor of the centenary of his discovery of electromagnetic induction. Various articles discuss the influence of his discoveries on the use of electricity in the treatment of disease. Born in 1791, Faraday was forced to leave school at the age of 10, when he became errand boy in a book shop. Later he was apprenticed to the trade of bookbinding and used his leisure time in reading scientific books. He began to experiment with home-made apparatus. In 1812 he heard Sir Humphry Davy lecture. A letter to Sir Humphry expressing his desire to enter a scientific occupation resulted in his becoming bottle washer in the laboratory at the Royal Institution and later superintendent of the apparatus. In 1825 he was made director of the laboratory, where he experimented for seven years to show that a magnetic field could produce an electric current.

Centenary of the Leeds School of Medicine.—The one hundredth anniversary of the founding of what is now the Medical Faculty of the University of Leeds was celebrated, July 1, with a special congregation of the university, attended by about fifty representatives of the universities and institutions of Great Britain. The Duke of Devonshire, chancellor of the university, and Sir James Baillie, vice chancellor, made addresses of welcome, to which Sir Humphry Rolleston and Major-General Hime of the Royal Army Medical Corps replied with felicitations on the centenary of the school of medicine. Honorary degrees were conferred on Dr. Arthur Hawkyard, lord mayor of Leeds, Dr. Jane Walker, Dr. Alfred G. Barrs, Sir John Bland-Sutton, Lord Dawson of Penn, Sir Walter Morley Fletcher, Sir Gowland Hopkins and Sir George Newman. The Leeds school of medicine, after an independent career of more than fifty years, was united in 1884 with the Yorkshire College, which afterward became a constituent college of the Federal Victoria University. On the disruption of Victoria University in 1904 the University of Leeds emerged as an independent school. The present building of the school of medicine, built in 1894, has recently been extended to provide more room for the departments of physiology and pathology.

Deaths in Other Countries

Sir William John Ritchie Simpson, director of tropical hygiene, Ross Institute, and emeritus professor of hygiene and public health at King's College, the University of London, September 20, aged 76, of pneumonia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 12, 1931.

The Birth Rate and Birth Control

In his presidential address before the Sanitary Inspectors Association, Sir Leonard Hill said that the birth rate was now the subject of intensive propaganda among the masses of the people, and the no-child or one child home was becoming the rule. Although the unskilled continued as yet to breed more than the skilled, birth control was practiced in every class of society. The result was that between 1921 and 1931 the population of Great Britain increased hardly more than in the previous decade, which included the war. The infant mortality had fallen from 167 per thousand births at the end of the last century to 60 in 1930, but this did not compensate for the enormous drop in the birth rate. The annual increase of births over deaths per thousand living was 12 at the end of the last century but in 1929 was under 3, so that soon the population would be stationary. Three children per family were required to keep up the population. The Japanese were increasing at the rate of a million a year. They were multiplying just as we did with the coming of the industrial revolution, and, with a birth rate continuing to rise at the present rate, in thirty years would number 100 millions, and be the largest great power. They had 27 million agricultural workers to keep up the virility of the race. Our dominions and colonies occupied a fourth of the best land in the world, and we ought to send thither 250,000 emigrants a year, and these should be young people who would breed. The alternative was to leave that vast area unoccupied or to be colonized by other nations. If the white men were going to lessen their breeding rapidity they must see to it that colored races were taught the methods of doing so. At present such races were kept down to the level of the food supply by high infant mortality, famines and epidemics. The population of the world was increasing by some 12 millions a year, but this could not continue. A far less cruel world could be brought about only by limitation of the birth rate, but this must be coupled with the duty of keeping up a virile race. Birth control was at a minimum among those with a tendency to mental defect, and there was some danger of increase in inferior types.

National Economy and Panel Physicians

The socialist government has come to a sudden end in consequence of extravagant expenditure on "social services." It has brought the country, notwithstanding taxation far in excess of any other country, an estimated budget deficit of $350,000,000 this year and of $870,000,000 next year. Nothing but ruthless further taxation and economy will save the country. A wholesale reduction of the salaries of civil servants from cabinet ministers down to school teachers and panel physicians is proposed. An economy committee appointed by the government has proposed, among its cuts, the reduction of the capitation fee of panel physicians from 9 to 8 shillings. Representatives of the Insurance Acts Committee of the British Medical Association met the minister of health by request. He assured them that comparable contributions to the needs of the exchequer would, as far as practicable, be secured from other bodies of persons concerned with the administration of the national health insurance acts and not from physicians alone. He appreciated that payments under the capitation system were subject to the necessary outgoings on account of expenses of practice, but he felt that physicians would recognize that the deduction was not unreasonable by comparison with the contributions called from other sections of the community. The representatives of the committee stated that they could not accept the statement in the economy report that payments to physicians are too large. The minister replied that the deduction was not based on any consideration of justification but on the financial state of the country. On receiving the report of its representatives and after due consideration of the whole situation, the committee expressed the opinion to the minister that insurance practitioners will be prepared to bear their fair share of the burden which the community generally will be called on to bear.

Concussion and Memory

At a meeting of the Medico-Chirurgical Society of Edinburgh, Dr. C. W. Somerville reported a number of cases showing the effect of cerebral concussion on memory—a subject of considerable medicolegal importance in these days of automobile accident. The reliability of the testimony of the victim of concussion presents a grave problem to both the medical and the legal profession. Dr. Somerville finds that in many cases there is no loss of memory of events preceding the accident but the victim does not remember the "bump" and may be confused as to subsequent events. Thus in hill climbing Dr. Somerville fell over a cliff 20 feet high and became unconscious. When he came to he thought he was not hurt but found that he had broken his arm and dislocated his wrist. He remembered falling but not the bump or rolling down the slope. A fellow student was thrown on his head from a horse on the 10th of the month. When he recovered, he thought it was the 3d of the month. One week's memory was lost, but there was no confusion. A motor bicycle skidded and crashed. The rider was rendered unconscious but recovered and spoke to the bystanders. His head was badly cut and he was in the hospital three weeks. He remembered how he crashed, being forced by a passing automobile into a rut, but his memory of subsequent events was impaired; he did not remember speaking to the bystanders. Now comes the medicolegal aspect. One cyclist was run into by another and thrown. He was still unconscious when Dr. Somerville arrived, but during the examination he opened his eyes and gradually recovered consciousness. When the doctor came to his house a day or two later the parents looked strangely at him and said: "Fred says it was you who ran into him." He persisted in this recollection, but the arrival of the other cyclist at the house rendered it unnecessary for the doctor to defend himself from what seemed a quite plausible charge. This case formed the basis of the evidence for the defense in a famous Edinburgh trial for murder, known as the Merrett case. John Donald Merrett telephoned to the police that his mother had shot herself. She was taken unconscious to the Royal Infirmary. On recovering she told the nurses that she had been writing a letter—she told correctly to whom—when her son was standing by, and she said to him, "Go away, Donald, and don't annoy me." Then there was something like a pistol shot. She died from septic meningitis with a bullet in her brain and her son was tried for matricide. Prof. G. M. Robertson, the psychiatrist, was called for the defense. He gave the preceding case, which was reported to him by Dr. Somerville, as an illustration of the fact that a person who has sustained a head injury may be confused as to who inflicted the injury. The cyclist had no knowledge of what took place but concocted a story which he believed to be true. In the murder case, nurses gave evidence that the conversation of the woman was so rational and connected as to convince any one but an expert that she knew what she was saying. Professor Robertson admitted that what she said was of value as evidence, if material corroboration was forthcoming. His experience was that in head injuries recollection does not as a rule come up to the period of the accident. The jury brought in a verdict of "not proven."

In the discussion which followed, Sir Montagu Cottetill, the surgeon, described the effects of a fall from a motor bicycle on himself. He remembered everything distinctly up to about

two minutes before the accident. After that there was an entire blank. He was picked up by a friend and taken home. During the drive of three or four minutes he delivered an elaborate lecture on the necessity of trephining in cases of compression of the brain due to fractured skull. He was unconscious when taken into his house and put to bed and afterward had no recollection of the lecture. He reported also an extraordinary case in which a man was thrown from a cart, suffered concussion, and was unconscious for six days. When he recovered he had completely lost memory of the preceding two and one-half years. The result of the whole discussion is to show that in cases of concussion memory may be complete up to the injury or a variable preceding period may be completely cut out, that there is no recollection of the "bump" or "crash," and that the patient's description of the circumstances of the accident may be an illusion.

PARIS

(From Our Regular Correspondent)

Aug. 26, 1931.

Compensation for Scientists for Their Discoveries

The question of rights to scientific discoveries, which has been occasionally discussed for many years, appears to be entering a more active phase. Mr. Lucien Klotz, who was invited to address the Academy of Medicine, called attention to the wretched economic condition of many scientists who are the authors of accounts of discoveries that contribute to the prosperity of commercial establishments that exploit them. He cited the case of Branly, whose research made possible the wireless telegraph and wireless telephone and who is spending his old age in destitution, whereas the broadcasting companies are realizing great profit from his work. His case is far from being isolated. Klotz suggests that companies exploiting a discovery in pure science be required to pay into a certain fund a small percentage of their profits each year, a part of which amount should go to the author of the discovery and the remainder be distributed among research laboratories to promote investigation. The academy appointed a committee to study the problem, and Madame Curie, its spokesman, reported conclusions entirely in line with Klotz's suggestions. Mr. Fourneau, a member of the academy, opposed, however, the conclusions, saying that from a practical point of view scientific researches usually end with the formulation of theories, many of which cause financial loss to those who try to translate them into realities and to exploit them with their own financial resources, whereas the scientist incurs no financial risk whatever. He added that, if the laboratories are short of funds, it is because there are too many. It would be an advantage to reduce the number and thus economize in material scattered among too large a number. The opposition of Mr. Fourneau was surprising, for he himself exploits the discovery of an anesthetic, called "stovaine." He patented the process and sold the patent to a company of manufacturing chemists, who pay him a large royalty. Most scientists do not patent their discoveries. The securing of a patent entails considerable expense and the discovery does not always find a manufacturer who will buy it; furthermore, the patent laws allow one to patent, strictly speaking, only the apparatus and not the process itself, and they protect only a trade mark registered at the Tribunal du commerce. The French law protects the interests of the merchant and the manufacturer rather than the rights of the scientist. In medicine, many pharmaceutic specialties—widely advertised—are prepared according to formulas found in scientific works, medical journals and transactions of societies, and no authorization is obtained by the merchant from the author. Even though his name is given on the label of the container and in the prospectus, the author cannot stop the sale of the product, because, according to the law, the publication of his formula has made the latter "common property." On the other hand, the law does not permit the patenting of a pharmaceutic formula and prohibits the sale of remedies prepared in accordance with secret formulas. Authors of pharmacologic articles are thus deprived of all protection. The whole situation is so unjust that it has often been the subject of special investigations and conferences, some of which have been of an international scope, and in which Mr. Raymond Weiss, head of the legal department of the Institution internationale de coopération intellectuelle, in Paris, participated. The League of Nations has manifested interest in the problem since 1923. The Institut international de coopération intellectuelle is engaged in an extensive inquiry in regard to the question. A special meeting was called in Paris, in December, 1927, which was attended by manufacturers and lawyers, under the chairmanship of the Spanish scientist Julio Casarès. After three days of deliberation, resolutions were adopted, which appear to contain the elements of the international solution of the problem. The plan proposed is based on four principles, which Mr. Raymond Weiss commented on in a recent public lecture: 1. Every scientific discovery the use of which contributes toward the realization of a product that has commercial value entitles the author to protection. 2. The rights of the scientist begin with the publication of his discovery in a written work or a communication to a learned society. The publication itself creates priority, and, quite contrary to rulings with respect to invention patents, does not entail the forfeiture of the rights of the author during the time his discovery remains unexploited industrially. The only formality required would be the registration of his discovery at a special international bureau to be established, it is hoped, in the near future, the registration to be made by the scientist as soon as his discovery gives rise to exploitation, irrespective of the lapse of time since his original publication. 3. From the date of this registration, the duration of the period during which the author, protected by the international bureau, will be entitled to compensation from manufacturers exploiting his discovery would be thirty years. 4. The compensation of the author should be, as far as possible, amicably determined by an agreement between the parties concerned. The courts will not be called on to intervene unless the parties are unable to reach an agreement. A special provision states that, every five years, a revision of the contract may be demanded by one of the parties if the amount agreed on originally is considered insufficient or excessive. Furthermore, an insurance system might be created that would take the place of the manufacturers. The insurance system might be under the control of the government, of mutual societies or of the ordinary commercial companies, depending on the wishes of the various countries. The payments of manufacturers would be in the form of a fixed sum, the amount depending on the importance that scientific discoveries assume in their particular line of manufacture. After the scientists have been justly compensated, any excess might be used to aid such institutions as are of benefit to the people as a whole, such as hospitals and laboratories.

Heredity and Diabetes

Prof. Marcel Labbé, in an address delivered before the Academy of Medicine, discussed the hereditability of diabetes, in which field he has had a long experience. According to the majority of writers, such hereditability, long since recognized, exists in 25 per cent of the cases. A distinction is made between hereditary and familial diabetes, but in reality they have the same significance. Diabetes comes under an hereditary system that has functioned for centuries according to the laws of Mendel. Labbé distinguishes benign diabetes without denutrition, and grave diabetes with denutrition. The former is usually acquired as a result of prolonged superalimentation; the latter without known cause. Under the various forms of familial diabetes may be distinguished diabetes due to an hereditary influence and diabetes due to wrong familial habits of eating, which lead to superalimentation. In a hundred cases, Labbé and Landau found twenty-three cases of hereditary diabetes.

Evidences of heredity are found in 35 per cent of the grave cases of diabetes and in 20 per cent of the benign cases. The rôle of paternal heredity is much greater than that of maternal heredity. That is due to the fact that a diabetic woman rarely has children. The hereditary influence is, however, sometimes overcome, to a certain extent. Labbé stated that he had seen six children born of mothers with grave diabetes. While these children have not yet shown diabetic symptoms, it is possible that the disease will appear later. The hereditability of diabetes now is conceived of as the transmission of a functional insufficiency of the islands of Langerhans. It is difficult to understand why the insufficiency of the islands becomes apparent at different ages and remains latent for varying lengths of time. Hereditary transmission entails certain deductions with regard to the marriage of persons with diabetes. Some physicians prohibit marriage. In Labbé's opinion, in the majority of cases, diabetic persons who take good care of themselves may marry. Young diabetic women should, however, avoid pregnancy, as it is always dangerous for them.

BERLIN

(From Our Regular Correspondent)

Aug. 24, 1931.

Indications for Eugenic Sterilization

Prof. A. Mayer, director of the Universitäts-Frauenklinik, presented a report before the Tübinger Medizinisch-Naturwissenschaftlicher Verein on 219 tubal sterilizations performed in that clinic over a period of twelve years; they represent only 0.5 per cent of the total number of patients, evidence of a conservative policy. The patients sterilized may be divided into four groups: (1) sterilization plus interruption of pregnancy, 89; (2) sterilization plus cesarean section, 49; (3) sterilization plus gynecologic operation, 54; (4) sterilization only, 27. The indications fall into three classes: (1) obstetric-gynecologic (for example, narrow pelvis), 84; (2) medical (for example, pulmonary tuberculosis), 110; medical-eugenic (for example, epilepsy, psychoses), 25. The bases for eugenic sterilization are uncertain, as the "laws" of hereditary transmission are not sufficiently well known and because the present status of our laws does not permit such intervention. The United States with its compulsory sterilization of criminals has taken a stand in advance of us. Some similar legislation would be desirable in Germany. In fact, a weak beginning has been made; a movement has been launched to legalize sterilization on eugenic grounds if the person concerned gives his or her consent. In the case of sexual crimes, castration would be indicated in place of sterilization; since in that manner not only inferior posterity would be obviated but possibly through elimination of the abnormal libido further crimes might be prevented. Sterilization for purely economic reasons should be refused by physicians; it is an unsound attempt to remedy economic distress by means of medical measures and to place the responsibility for the outcome on the operator. It is prohibited by law. Sterilization to remove the danger involved in sexual intercourse is opposed to good morals. No conscientious physician will perform a sterilizing operation on such indications; hence sterilization on such grounds will doubtless always remain contraindicated. On the use of contraceptive maneuvers and devices, a marked change in the attitude of physicians has occurred. In an earlier day, it was regarded as contrary to the ethics of the profession, during the course of a medical consultation, to discuss at all the subject of contraception. Then came the recognition of the medical indications, and now, of late years, the economic indications have been approved by a considerable portion of the medical profession. It will be admitted, however, that the unrestrained application of such measures awakens serious reflections; above all, unrestrained sexual license may cause demoralization, especially among the youth; a lowering of the dignity and worth of woman, and possibly race suicide. The danger is all the greater owing to the fact that birth control constitutes only one part of a program and a process that may lead to the dissolution of the family and the state. Centers for consultation on sexual matters, for the benefit not only of married persons but also of persons contemplating marriage, are therefore to be approved only if they are directed by physicians, and if the physicians realize their responsibility toward posterity and act in accordance with medical points of view. If the physicians wish to remain guides of the people, they must not allow themselves to be swept off their feet by the force of the current but must remain ever conscious of the fact that, along with the care of bodily health, they have a mission to perform in the preservation of moral values.

The Appearance of Children in Day Nurseries

In order to determine what have been the effects on the health of children, brought about by the economic conditions of the war period, the period of inflation and the present crisis, Drs. Felix Boenheim and Franz Heimann examined groups of children that they found in the municipal kindergartens and in the day nurseries. The demand for admission to these centers is great. Constantly, children have to be rejected who for social, hygienic and pedagogic reasons are in dire need of such care. As these writers said in the *Deutsche medizinische Wochenschrift*, the children examined were mostly the offspring of the unemployed and of recipients of welfare benefits. The living conditions were the worst imaginable; in many instances from eight to ten persons occupied small apartments consisting of one living room and a kitchen. The disorders in the children, resulting from the economic depression, are, to a great extent, irremediable. About 30 per cent of the *hort* children examined may be said to have bodies more or less permanently impaired. Some, in spite of institutional care, are still undernourished and stunted in their growth. The examinations, however, excluded the existence of all wasting diseases—also tuberculosis. The causes responsible for their condition are solely of an economic order. Whereas most of these children presented a growth and a weight that were below normal, some showed overweight, which must be regarded as "paradox obesity due to undernutrition." This pathologic picture, which was observed also during the war period, in which undernourished children appear too fat, is probably produced by hypothyroid conditions, although no special constitutional type is manifest.

Causes of Sudden Death

At the meeting of the Deutsche Gesellschaft für gerichtliche und soziale Medizin in Leipzig, Dr. Weyrich of Graz reported a series of observations on the sudden death of adults. The observations concerned 2,668 persons more than 20 years of age. The necropsy reports were for the years 1914-1917 and 1919-1929. The causes of death were traced to: disorders of the heart and the aorta, 42 per cent; respiratory organs, 23 per cent; urinary organs and organs of digestion, 13 per cent; brain, 9 per cent; other disorders, 13 per cent. Only in the group of disorders of the heart and the aorta was the mortality of males higher than the mortality of females (47 per cent as against 36 per cent). Of the various occupational groups, the mental workers showed the greatest and persons doing hard physical labor the slightest disposition to sudden death from disorders of the heart and the aorta. Sudden death as a result of brain disease was not as frequent in mental workers as in the other occupational classes.

Use of Bichromates in Printing

The use of bichromates in printing has increased in recent years owing to the growth of advertising, the extensive use of illustrations in journals and the necessity of getting out rapidly and cheaply large editions of documentary printing. The likelihood of eczemas developing among persons handling

such printing material has therefore become much greater. At the instance of the federal ministry of labor, the federal public health service, with the cooperation of the university dermatologic clinic in Breslau, has therefore been studying the manifestations of skin disease in lithographers handling zinc and stone plates, and it was found that of the persons examined, who, during their work, come in contact with chrome compounds, chiefly bichromate, 27 per cent are affected with eczema, and that 85 per cent of the persons so affected manifested a hypersusceptibility to bichromate, which had been acquired chiefly through working with such substance. The federal public health service has therefore proposed certain precautionary measures. In preparing bichromate solutions, all production of dust should be avoided by dissolving in a bottle the crystals that have been weighed out. Before the crystals are broken up they should be moistened. Whenever direct contact of the hands with bichromate is unavoidable, long rubber gloves should be worn, as far as possible. Etching fluids containing bichromate should be avoided. In any room in which bichromate solutions or prepared plates are employed, vessels containing a solution of bisulphite should be at hand for cleansing the hands, as this reduces the bichromates and chromates to harmless compounds. The hands must afterward be thoroughly rinsed with fresh water. Persons who have given evidence of a hypersusceptibility to bichromates should, if possible, be transferred to another department in which such contact can be avoided.

ITALY

(From Our Regular Correspondent)

Aug. 15, 1931.

Blood Groups and Paternity

In a recent decision, the court of cassation of Italy accepted the validity of evidence based on the relation of the blood group of the child to the blood groups of the parents in an endeavor to establish personal identity. Contrary to a previous opinion of the court of appeals, the court of cassation does not consider the distrust of this new method of diagnosis justified on the ground that its technic has not reached perfection. According to the highest court of appeal in Italy, inevitable uncertainties were associated at first with the application of the Landsteiner theory, but these may be regarded as overcome through improvements in technic introduced by Lattes, by Schiff and by Cuboni. As for the certainty of the results obtained by the examination of the blood groups, the studies and the researches carried out in recent years show that, while such an examination does not furnish an absolutely sure basis for the affirmation of a given filial relationship, it constitutes unquestionable evidence for the exclusion of such a relationship when the blood group of the child does not harmonize, in accordance with a determined system, with that of the supposed parent. The court, however, emphasizes that, in order for the results of this research to be conclusive, the examination must be extended to the blood groups of both the parents, since the two agglutinogens, behaving as dominant mendelian factors, cannot appear in the children if they are not present in one or the other parent. Hence, it may be said that the child is the offspring of a third party only when it is found that his blood does not harmonize with that of the supposed father or with that of the supposed mother.

The Surgical Treatment of Duodenal Ulcer

At a meeting of the Società di scienze mediche di Conegliano e Vittorio, Professor De Gironcoli presented a communication on "Progress in the Surgical Treatment of Gastroduodenal Ulcer." The speaker gave a survey of the various operative methods. He stated that, of the nonradical methods, gastroduodenostomy gives the fewest negative results. In nonoperative indolent ulcer, the disadvantages of this method are less than the damage resulting from an operation carried out without any certainty of the presence of an ulcer. The speaker considers that the failures resulting from gastric resection, whether performed according to the first or the second method of Billroth, are to be attributed either to the lack of correct indications or to an insufficient or too extensive resection of the two stumps, or to defective technic. He recalls that also rare recurrent ulcers and the very rare postoperative ulcers may be the cause of the failure, while some nervous patients, in whom is lacking the anatomic substratum that gives rise to postoperative disorders and who, on the basis of fluoroscopic observations wrongly interpreted, are subjected to laparotomy, would be better served by medical treatment. Surgical treatment is more successful, the graver the lesion.

Malaria in the Province of Milan

Although malaria in the province of Milan is of a mild type, the provincial antimalaria committee, of which Prof. Sileno Fabbri is president, has introduced measures to eradicate the last vestiges of the infection from the Lombard region. A topographic chart has been prepared showing the areas affected and the ditches, ponds and pools that are breeding places of mosquitoes. Sanitation of the region was entrusted to a medical specialist and was accomplished by the use of paris green, Lemma (an aquatic plant), and by the introduction of Gambusia. Several antimalaria centers were created and many dispensaries were provided with quinine and other specific preparations.

International Congress of Military Medicine

At the sixth International Congress of Military Medicine and Pharmacy, held at Aja, the Italian delegation was headed by Prof. Filippo Caccia, colonel in the army medical corps and sanitary director of the Corpo d'armata of Rome. The third topic on the program, "Methods of Hemostasis on the Battle Field; Unification of First-Aid Equipment and the Method of Applying It," was presented by Colonel Caccia and Professor Casella. Their conclusions were as follows: The use of the tourniquet as a means of hemostasis on the field of battle is fraught with danger, especially in the hands of unskilled persons. It does not seem advisable, however, to discard it absolutely from the sanitary equipment, lest some other means of ligation still more harmful be substituted in case of emergency. The apparatus to be entrusted to nontechnical personnel should consist chiefly of bandages of elastic tissue (not rubber) and of hemostatic tampons. The stretcher bearers, the private soldiers and the officers should be shown the dangers connected with the use of the tourniquet and its sole indication, namely, a spurting hemorrhage. Hemostasis at the first-aid station may be left, to a certain extent, to the physician in charge (temporary closing of the wound by means of a skin suture or by clamps; tamponing; possibly application of an emergency bandage).

The congress approved the Italian presentation and passed a resolution that the instruction to be given the service personnel on emergency hemostasis be standardized in all the armies. It considered desirable the continuation of research indicated by the Italian speakers, designed to limit the dangers of ischemia due to the application of the tourniquet. It expressed the desire that the commission on standardization of equipment open a competitive inquiry on the best methods of effecting hemostasis.

The Italian authors read a paper on the fifth topic on the program, "Effects of War Wounds on the Teeth and on the Lower Jaw—Their Treatment," in which they emphasized that the prophylaxis of such sequels depends to a great extent on the initial treatment. The treatment of such lesions requires, from the beginning, the collaboration of the dentist and the surgeon. Infection of the bone fragments is especially to be feared. The treatment should discover and suppress every cause of infection. Pseudarthrosis and losses of substance that do not heal with the application of prosthesis belong to the field

of surgery. Bone grafts may be indicated; metallic osteosynthesis is contraindicated. In wounds of the face, one must consider also the effect that such lesions have on the general condition and the morale of the patient. It is desirable to train in peace times a number of specialists to care for maxillofacial wounds in the various units of the army medical corps.

Meeting of the Council on Health

At the ministry of the interior, the Consiglio superiore di sanità met recently under the presidency of Professor Marchiafava. Dr. Basile, director general of the public health service, read a paper on the sanitary status of Italy during 1930, and the work done for the protection of the public health. He announced that work was under way on a large institute of public health in Rome, made possible through a gift of the Rockefeller Foundation. The institute is being erected in the university area and is designed to house the central scientific laboratories of the general management of the public health service. It will be the basis for a "school of application," of an essentially practical nature, for the technical personnel to be employed later in the service of hygiene and prophylaxis, controlled by the central government, the provinces and the communes.

The council then discussed forms of control pertaining to mineral springs, in order that Italy's hydrologic resources may be better utilized; likewise, regulations for the institutes of physical therapy and for the apparatus therein employed. Finally, the question of instruction in hygiene at the universities, in connection with the preparation for a health officer's career, was discussed.

Prof. Cesare Frugoni, medical clinician of Rome, was chosen as a member of the Consiglio superiore di sanità for the ensuing two years.

Pertaining to Higher Instruction

The cabinet has approved certain changes pertaining to higher instruction. It has been ordered that to the government examinations for certification as professional practitioners shall be admitted only those graduates in medicine who, during their course of study, passed successfully the examinations in special subjects. To the aids and assistants in the universities appreciable concessions, financial and otherwise, were granted. In place of the present terms "stabile" and "instabile," the expressions "ordinarius" and "extraordinarius," as applicable to university professors, have been reintroduced. Professors who are retired on account of age will receive the title of "emeritus."

Professor Calmette Awarded the Rovighi Prize

At the suggestion of the Commissione di pediatria, the decennial Rovighi prize has been awarded to Prof. Albert Calmette, assistant director of the Institut Pasteur in Paris, in recognition of his method of antituberculosis vaccination. The Accademia di Bologna refers to the Calmette method as a discovery that is unquestionably of the greatest importance for humanity and as one that has successfully passed its period of probation. Professor Calmette has turned over the amount of the prize to the Forlanini Foundation in Rome, with the request that it be used to aid research and be assigned to an Italian who is working on tuberculosis. He suggested that the Forlanini Foundation give preference, in the assignment, to Professor Nunni of Naples, who is just completing, at the Institut Pasteur, research on the filtrable elements of the tuberculous virus.

The Medicosurgical Society of Brescia

The Società medico-chirurgica bresciana met recently under the presidency of Professor Baratozzi. Professor Pignatti reported his results in the use of surgery in gastric tumors during four years of hospital practice in Brescia. He discussed recent cases of gastric resection for tumors, presenting the persons operated on. He admitted the uselessness of any serious surgical operation on a process far advanced and emphasized the importance of an early diagnosis, although he admitted that early diagnosis is difficult.

Dr. Pancotto and Professor Ubertini reported observations in an outbreak of undulant fever in the province of Brescia. In spite of the presence, for some time, in that region, of a widespread epizootic disease associated with abortion, no cases of Brucella in man had ever been observed until this outbreak. Research in the vicinity of the homes of the patients did not reveal any direct contacts between man and infected animals. Professor Ubertini discovered, on this occasion, a herd of cattle and goats manifesting abortion, and succeeding in isolating from the animals a micro-organism that may be regarded as probably Brucella melitensis. The speakers called attention to the importance of cheese and milk-containing foods as vehicles of infection, but expressed the opinion that the pathogenicity of the Bang bacillus for man is not comparable with that of the Brucella micrococcus, as otherwise outbreaks of undulant fever would be of constant occurrence, in view of the use of milk in so many foods.

Prizes for Large Families

The municipal government of Rome has established six prizes, to be awarded annually, over a period of five years beginning with 1932, to the largest and the healthiest families of the city. The prizes do not consist of money but of a warranty deed to a small house or apartment comprising at least four rooms and a kitchen. For the prizes may compete all parents, legally married, who, in the preceding four years, have had at least three children born to them in Rome and still living. Persons who are affected with transmissible diseases or who are addicted to alcoholism to such an extent as to impair the robustness of their offspring will be excluded from competition for the prizes. The prizes will be awarded every year on April 21, the anniversary of the natal day of Rome.

RIO DE JANEIRO

(From Our Regular Correspondent)

Aug. 15, 1931.

Injection Treatment of Cavities in Pulmonary Tuberculosis

Dr. A. MacDowell, head of the department of phthisiology of the Policlinica Geral, recently lectured before the Academia de Medicina of Rio de Janeiro on the results obtained by the injection of drugs into cavities in the treatment of pulmonary tuberculosis. The principal indications are as follows: (1) in cases of bilateral cavitation when artificial pneumothorax seems impossible; (2) when artificial pneumothorax fails to cause collapse of the cavities on account of broad adhesions to surrounding tissues, which cannot be resected by operation, and (3) finally, when pneumothorax fails to cause the closure of the cavities, even after the resection of one or more adhesions, because nonresectable adhesions are present. The speaker presented a patient who lived with tuberculous patients. Examination of the patient, when first observed, gave negative results for tuberculosis. He was admitted one year later to the clinic. He had pulmonary tuberculosis with a cavity of an exudative and ulcerous type in the upper lobe. Artificial pneumothorax was performed, and as a supplementary treatment 10 cc. injections of colloidal copper morrhuate were given. The patient obtained great relief. However, the cavity remained partially open as the result of broad adhesions which could not be sectioned, and it secreted an abundant purulent yellow exudate which contained many bacilli. Pleurisy with a small effusion developed. A Jacobeus operation, modified according to Souza Mendes's technic, failed to close the cavity, because one adhesion which kept it open could not be removed. While planning to place the patient on Sauerbruch's diet, it was decided first to give him injections into the cavity of the copper salt solution. When the first injection was given, thirty days had elapsed since the operation and at this time, the roentgen exami-

nation showed that the cavity was still open. Another injection was given ten days after the first one. The second roentgen examination, forty-eight hours after the second injection, proved that the cavity had almost entirely disappeared. The patient was then given intravenous injections of the copper salt solution. The sputum was greatly modified by the treatment. It presented a white mucous aspect and had no bacilli. One month later the sputum continued to be free of bacilli, but the third roentgenogram taken at this time showed a slight reopening of the cavern. The return to the administration of injections of copper salt solution into the cavity was followed by the definite closure of the cavity.

The importance of the treatment is emphasized by the following facts: (1) All the patients with cavitation in pulmonary tuberculosis who were treated by this method showed a modification of the sputum (both in its aspect as well as in being free of tubercle bacilli). (2) The intracavitary injections of certain drugs (in the speaker's cases, copper salt solution), may cause closure of the cavity. Similar results have been obtained in cases of cavitation only by resorting to an extrapleural thoracoplasty, a serious and sometimes a mutilating operation. The technic of the injection treatment is simple, and it may be given to ambulatory patients. The speaker's assistant physicians have given about sixty injections to about twenty-three tuberculous patients.

The good results obtained with intravenous injections of copper morrhuate solutions in the treatment of tuberculous abscess of the lung, as well as the harmlessness of the drug when used in proper dosage, indicated its preference to other drugs in the treatment of cavitation in pulmonary tuberculosis. In the clinic of which the speaker is the head, a large number of patients received intravenous injections of 10 to 20 cc. each of copper morrhuate solution every other day as treatment for cavitation in pulmonary tuberculosis, always with good results. The fact that some of the patients had nephritis indicated the advisability of giving the injections directly into the lung cavities. This also was done with good results.

Dr. M. de Abreu spoke before the Academia de Medicina, as a continuation of Dr. MacDowell's lecture. He illustrated his lecture with roentgen films to explain a method for the transparietal puncture of cavities of the tuberculous lung, according to a technic developed in collaboration with Dr. Quaresma. By means of the combined views of the lung, the position of the cavity is determined. The direction of the puncture is determined in accordance with the projection of the intercostal spaces, the intrathoracic organs and the localization of the cavity as appearing in the roentgenogram, and under the guidance of radioscopy the needle is carried up to the point mathematically determined.

Marriages

WILLIAM M. PARKER, De Valls Bluff, Ark., to Miss Georgia Eloise Zearing at Glen Ellyn, Ill., August 4.

ARTHUR NEAL OWENS, Baltimore, to Miss Georgia May Little of Atlanta, Ga., September 30.

TIMOTHY LEHMANN, JR., to Miss Marie Alice Williams, both of Columbus, Ohio, June 28.

ELDON L. WATSON, Madison, Wis., to Miss Mildred Reynolds of Shorewood, July 3.

WALTER BAUER, Boston, to Miss Margaret Zeller of Still River, Mass., September 12.

WILLIAM R. ROGERS to Miss Dorothy McCann, both of Cincinnati, June 25.

LELAND F. CARTER, Detroit, to Miss Mary Brown of Cleveland, September 4.

FRANK E. DREW to Miss Gertrude Fellman, both of Milwaukee, June 27.

KENNETH PHILLIPS to Miss Shirley LeMon, both of Miami, Fla., July 3.

Deaths

George Thomson Elliot, East Otisfield, Maine; University of Louisiana Medical Department, New Orleans, 1881; professor of dermatology in the New York Post-Graduate Medical School, 1896-1898; professor, 1898-1920, and later emeritus professor of clinical medicine in the departme: of dermatology, Cornell University Medical College, New York; consulting dermatologist to St. Luke's, Columbus, New York Lying-In, New York Skin and Cancer hospitals and the New York Eye and Ear Infirmary, New York; aged 75; died, September 14, of heart disease.

Stewart Le Roy McCurdy, Pittsburgh; Columbus Medical College, 1881; member of the American College of Surgeons; professor of anatomy and oral surgery, dental department, University of Pittsburgh since 1896, and assistant professor of surgery in the school of medicine of the University of Pittsburgh; oral and plastic surgeon to the Presbyterian Hospital; orthopedic surgeon to the Columbia Hospital, Wilkinsburg; author of "Manual of Orthopedic Surgery" and "Oral Surgery"; aged 72; died, September 8, at his home in Wilkinsburg, Pa.

George Street McReynolds ● Temple, Texas; College of Physicians and Surgeons, Baltimore, 1898; member of the American Academy of Ophthalmology and Oto-Laryngology, American College of Surgeons and the American Bronchoscopic Society; on the staff of the King's Daughters' Clinic and Hospital; aged 59; died, August 26.

Howe Bayard Langsdale, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1908; member of the Illinois State Medical Society; on the staff of the Ravenswood Hospital; aged 45; died, September 23, in St. Luke's Hospital, of acute pyelonephritis following nephrectomy for removal of stone in the left ureter.

Henry Yost Slaton, Greenville, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; member of the Kentucky State Medical Association; served during the Spanish-American and World wars; aged 59; died, September 6, in the Jennie Stuart Hospital, Hopkinsville.

John King Gamble, Cleveland; Western Reserve University Medical Department, Cleveland, 1907; aged 50; surgeon in charge and superintendent of the Carnegie Avenue Hospital, where he died, August 21, of arteriosclerosis, chronic nephritis, diabetes mellitus and angina pectoris.

William David Pemberton, Concord, N. C.; University of Maryland School of Medicine, Baltimore, 1887; member of the Medical Society of the State of North Carolina; past president of the Cabarrus County Medical Society; aged 72; died, September 9, of chronic nephritis.

Harlow L. D. Woodruff, Ellsworth, Maine; Medical Department of the University of the City of New York, 1870; member of the Maine Medical Association; for eighteen years member of the board of health; aged 85; died, August 16, of heart disease and arteriosclerosis.

Theron Hart Slaughter, Long Beach, Calif.; Washington University School of Medicine, St. Louis, 1912; member of the California Medical Association; on the staff of the Long Beach Community Hospital; aged 43; was killed, September 16, in an automobile accident.

Clarence S. Molseed, Omaha; John A. Creighton Medical College, Omaha, 1915; associate professor of surgery at his alma mater; served during the World War; on the staffs of St. Catherine's and St. Joseph's hospitals; aged 40; died, September 3, of heart disease.

Norfleet Lynn Carney, Clarksville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1879; University of Nashville Medical Department, 1880; formerly mayor and member of the city council; aged 77; died, August 9, of arteriosclerosis.

James Asa Adair, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1919; member of the Medical Society of Delaware; aged 35; on the staff of the Homeopathic Hospital, where he died, August 21, of miliary tuberculosis.

Walter Legier Coolidge, Louisville, Ky.; Louisville Medical College, 1904; member of the Kentucky State Medical Association; served during the World War; aged 49; died, September 3, of cardiovascular renal degeneration and emphysema.

Edward Thomas McGuire, Mead, Neb.; Lincoln Medical College of Cotner University, 1908; president of the Nebraska

State Board of Medical Examiners; aged 61; died, July 26, in a hospital at Omaha, of gangrenous appendicitis and diabetes mellitus.

John Joseph McKew, New York; Bellevue Hospital Medical College, New York, 1883; member of the Medical Society of the State of New York; aged 71; died, September 7, in the Presbyterian Hospital, of hypertrophy of the prostate and heart disease.

John Watson Shaw ● Washington, D. C.; University of Pennsylvania School of Medicine, Philadelphia, 1890; aged 65; died, September 4, in the Garfield Memorial Hospital, of malignant tumor of the left kidney with metastases to the liver.

William Gregg Gill ● Newton, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1910; councilor of the Sixth District Medical Society; aged 49; died, August 20, in a hospital at New Orleans, of undulant fever.

Anthony Pennisi ● Brooklyn; Long Island College Hospital, Brooklyn, 1925; on the staff of the Cumberland Hospital; aged 30; died, September 5, of injuries received when the automobile in which he was driving was struck by a train.

George Washington Bagley, Jr., Oteen, N. C.; Atlanta Medical College, 1915; member of the Medical Association of Georgia; served during the World War; aged 40; died, August 29, in the United States Veterans' Hospital number 60.

Conrad Piser Kornreich ● New York; Medical Department of Columbia College, New York, 1895; on the staff of the Lenox Hill Hospital; aged 57; was killed, August 17, when the automobile in which he was driving overturned.

William R. Googe, Abbeville, Ga.; Atlanta Medical College, 1890; member of the Medical Association of Georgia; formerly mayor, member of the county school board and city council; aged 64; died, August 20, of heart disease.

George Dunlap Bennett, Mountain View, Calif.; University of Pennsylvania School of Medicine, Philadelphia, 1879; aged 76; died, August 12, in the University of California Hospital, San Francisco, of carcinoma of the pancreas.

Thomas Townsend Gaunt, New York; Medical Department of Columbia College, New York, 1881; aged 74; died, September 2, at his summer home in White Sulphur Springs, W. Va., of myocarditis and angina pectoris.

Charles Roberson, Greensboro, N. C.; Long Island College Hospital, Brooklyn, 1897; member of the Medical Society of the State of North Carolina; aged 59; died in September of coronary occlusion and arteriosclerosis.

Elmer E. Pownall, Richboro, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1886; member of the Medical Society of the State of Pennsylvania; aged 69; died, August 10, of carcinoma of the stomach.

Charles Leopold G. Hoening, Hoboken, N. J.; University of Bonn, Germany, 1885; formerly on the staff of St. Mary Hospital; aged 69; died suddenly, September 4, while spending his vacation in Rangely Lakes, Maine.

William Caldwell Perrow, Chicago; Chattanooga (Tenn.) Medical College, 1909; aged 45; was found dead in his office, September 15, of hemorrhage following a self-inflicted laceration of the neck with a razor blade.

William Harrah Watson, Chebanse, Ill.; Rush Medical College, Chicago, 1875; Civil War veteran; aged 87; died, September 5, in the Illinois Central Hospital, Chicago, of acute urinary retention and uremia.

Zachary Taylor Cunningham, Princeton, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1880; past president of the Caldwell County Medical Society; aged 82; died, August 29, of pneumonia.

Louis Kahn ● Columbus, Ohio; Starling Medical College, Columbus, 1888; formerly president of the city board of health; aged 67; died, September 6, in the Mount Carmel Hospital, of abdominal carcinomatosis.

John Carter Hanna ● Akron, Ohio; Kentucky School of Medicine, Louisville, 1893; aged 67; died, August 12, in the Cleveland Clinic Hospital, of carcinoma of the sigmoid with metastases to the omentum.

Franklin Powel, Chester, Pa.; Hahnemann Medical College of Philadelphia, 1881; on the staff of the J. Lewis Crozer Home and Hospital; aged 82; died, August 31, while on a vacation in Newark, N. J.

Clarence Wilbur Leigh ● Evanston, Ill.; Rush Medical College, Chicago, 1883; veteran of the Spanish-American and World wars; aged 71; died, September 10, in Constantine, Mich., of myocarditis.

Wilbur Smiley Wallace, Erie, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1901; served during the World War; aged 55; died, August 28, of lateral sclerosis of the spinal cord.

George Henry Wallace ● Pampa, Texas; Barnes Medical College, St. Louis, 1904; served during the World War; aged 53; died, August 14, of complications, following an operation for appendicitis.

Joel Y. Hume, Auxvasse, Mo.; St. Louis Medical College, 1879; member of the Missouri State Medical Association; aged 79; died, August 22, in a hospital at Fulton, of cardiac insufficiency.

Charles N. Miller, Oakland, Calif.; California Medical College, San Francisco, 1888; Civil War veteran; aged 86; died, August 8, of chronic myocarditis and chronic interstitial nephritis.

Ray Coman Sink, Winston-Salem, N. C.; Long Island College Hospital, Brooklyn, 1929; aged 30; was drowned, August 20, at Virginia Beach, Va., while trying to rescue a girl.

Schuyler H. Dech, Easton, Pa.; Eclectic Medical Institute, Cincinnati, 1901; member of the Medical Society of the State of Pennsylvania; aged 52; died, June 4, in the Easton Hospital.

George W. Davis, Lockland, Ohio; Medical College of Ohio, Cincinnati, 1888; member of the Ohio State Medical Association; aged 73; died, June 24, of carcinoma of the prostate.

Emil Max Senger ● Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1924; aged 33; died, August 27, in Saranac Lake, N. Y., of pulmonary tuberculosis.

John A. Drouin, St. Johnsbury, Vt.; Baltimore University School of Medicine, 1902; member of the Vermont State Medical Society; aged 53; died, August 11, of angina pectoris.

William Cooper Stubbs, Celina, Ohio; Pulte Medical College, Cincinnati, 1888; member of the Ohio State Medical Association; aged 69; died, September 7, of heart disease.

Edward August Pape ● Indianapolis; State College of Physicians and Surgeons, Indianapolis, 1907; aged 50; died, September 7, in Chillicothe, Ill., of cerebral hemorrhage.

William Francis Beamish, Port Hope, Ont., Canada; University of Toronto Faculty of Medicine, 1920; aged 46; died, July 26, in the Toronto (Ont.) General Hospital.

Robert E. Donahue, Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1907; aged 47; died, September 5, in the Knoxville General Hospital, of malignant endocarditis.

Lawrence Branch Young, Rolesville, N. C.; College of Physicians and Surgeons, Baltimore, 1886; aged 72; died, August 14, of chronic interstitial nephritis and uremia.

Charles Harrod Vinton ● Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1868; aged 86; died, August 21, in Ogunquit, Maine, of prostatitis.

Henry Scudder Drake, Middleboro, Mass.; Harvard University Medical School, Boston, 1881; aged 71; died, August 14, of arteriosclerosis and hemorrhagic nephritis.

Elmer A. Pierce, Ocracoke, N. C.; Hahnemann Medical College and Hospital, Chicago, 1891; aged 69; died, August 21, in a hospital at Washington, of pneumonia.

Cooper Dave Kunkel, Pulaski, Va.; Bellevue Hospital Medical College, New York, 1873; member of the Medical Society of Virginia; aged 83; died, June 11.

John James Thomas, Youngstown, Ohio; Jefferson Medical College of Philadelphia, 1881; aged 79; died, September 1, of coronary and cerebral arteriosclerosis.

Melancthon R. Waggoner, De Witt, Iowa; Hahnemann Medical College and Hospital, Chicago, 1896; aged 57; died suddenly, September 9, of heart disease.

Charles S. Walker ● Plymouth, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1896; aged 65; died, August 21, of aortic insufficiency.

Guy J. Wormley, Sandwich, Ill.; Rush Medical College, Chicago, 1893; member of the Illinois State Medical Society; aged 59; died, August 30, of uremia.

James Priestly Austin, Windsor, Ont., Canada; University of Toronto Faculty of Medicine, 1913; aged 43; died, suddenly, September 4, of heart disease.

George P. Chambers, Savannah, Tenn. (licensed, Tennessee, 1902); veteran of the Spanish-American War; aged 52; died, September 3, of heart disease.

Charles Augustus Fletcher, Kalamazoo, Mich.; University of Michigan Medical School, Ann Arbor, 1888; aged 70; died, September 4, of heart disease.

James Copeland, Tupelo, Miss.; Medical Department, University of Tennessee, 1890; aged 72; died, August 2, of myocarditis and dilatation of the heart.

Charles Henry Schwaemmle, Mobile, Ala.; Jefferson Medical College of Philadelphia, 1890; aged 62; died, August 30, in Spring Hill, of diabetes mellitus.

Chesley C. Uhls, White City, Kan.; Missouri Medical College, St. Louis, 1887; aged 69; died, August 29, of cerebral hemorrhage and chronic nephritis.

Levinus Abraham Lansing ● Wakefield, Neb.; University of Buffalo School of Medicine, 1897; aged 69; died, August 7, of pneumonia and acute nephritis.

Michael Keenan, Troy, N. Y.; Albany Medical College, 1888; aged 70; died, August 24, of myocarditis, pulmonary edema and interstitial nephritis.

William Robert Stewart, Indianapolis; Hahnemann Medical College and Hospital, Chicago, 1890; aged 66; died, August 30, of carcinoma of the colon.

Charles Edgar Taylor ● Irwin, Pa.; Medical Department of the University of the City of New York, 1882; aged 73; died, August 20, of carcinoma.

William J. Campbell, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1871; aged 81; died, September 4, of heart disease.

James Henry Morgan, San Antonio, Texas; University Medical College of Kansas City, 1904; aged 57; died, May 24, of asthma and heart disease.

Stuart Morton Stuber, Flushing, Mich.; University of Michigan Medical School, Ann Arbor, 1930; aged 29; died, September 8, of pneumonia.

Alfred R. Haas ● Ellinwood, Kan.; University Medical College of Kansas City, 1901; aged 60; died, August 19, in Great Bend, of septicemia.

Wellington Henry Holtzman, Vernon, Mich.; Medical College of Ohio, Cincinnati, 1878; aged 82; died, August 20, of chronic myocarditis.

James Eakins, Alpena, Mich.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1871; aged 84; died, August 26, of senility.

Penn Gaskell Skillern, Sr., Sharon Hill, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1877; aged 74; died, July 25.

Peter Joor ● Maxwell, Iowa; State University of Iowa College of Medicine, Iowa City, 1881; aged 73; died, August 19, of arteriosclerosis.

Anna M. Fisher, Minneapolis; Detroit Homeopathic Medical College, 1873; aged 90; died, August 30, of arteriosclerosis and coronary disease.

Charles F. Lahn, Appleton, Wis. (licensed, Wisconsin, under the Act of 1899); aged 66; died, September 6, of carbolic acid poisoning.

Manuel Nash Keys, Detroit; Detroit College of Medicine and Surgery, 1924; aged 31; died, August 12, of splenomyelogenous leukemia.

James A. Sims, Pine Village, Ind.; Medical College of Indiana, Indianapolis, 1879; aged 81; died, August 25, of cerebral hemorrhage.

John Van Ess, Newark, N. J.; Medico-Chirurgical College of Philadelphia, 1903; aged 48; died suddenly, September 2, of heart disease.

Charles E. Dukenfield, McMinnville, Ore.; University of Buffalo School of Medicine, 1882; aged 80; died, August 14, of pneumonia.

Stuart B. MacDiarmid ● Omaha; John A. Creighton Medical College, Omaha, 1904; aged 50; died, August 25, of heart disease.

Welcome B. Sprinkle, Oaktown, Ind.; Louisville (Ky.) Medical College, 1876; aged 76; died, September 1, of cerebral hemorrhage.

Patrick J. Scallon, Port Angeles, Wash.; Michigan College of Medicine, Detroit, 1885; aged 69; died, July 16, of hemiplegia.

Walter J. Wyant, Dayton, Ohio; Columbus Medical College, 1889; aged 65; died, August 5, in the Dayton State Hospital.

Robert R. Williams, Manning, Iowa; Rush Medical College, Chicago, 1876; formerly county coroner; aged 82; died, June 8.

Robert James G. O'Connell, San Francisco; Cooper Medical College, San Francisco, 1889; aged 64; died, June 12.

Elias Lincoln Shope, Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1889; aged 64; died, June 15.

Wilbur J. Sheldon, Los Angeles; Pulte Medical College, Cincinnati, 1893; aged 65; died, June 13.

Correspondence

PROTECTION OF STUDENTS AND NURSES AGAINST TUBERCULOSIS

To the Editor:—In THE JOURNAL, August 29, Dr. Fishberg asks some questions concerning the article entitled "Recent Facts on Transmission of Tuberculosis," published in THE JOURNAL, August 1. It appears that Dr. Fishberg's chief reason for asking these questions is his fear that if the facts concerning the present situation become known to the public it will become more difficult to recruit nursing staffs for tuberculosis hospitals.

The truth is, the paper did not apply solely to institutions for the tuberculous but to all hospitals where tuberculosis is being spread from patients to students of nursing and medicine. The hospital with a contagious technic so efficient that such spread is prevented, whether it be for the tuberculous or a general hospital, is exempt. Available evidence, however, leads me to believe that these are scarce. The chief reason for publishing the article at this time was that the facts must be accepted by the medical and nursing professions and steps taken to prevent further disaster and discredit to these professions. The public has a perfect right to know the facts. What can be worse for parents than to send their girls and boys to schools of medicine and nursing only to receive them back into the home after several years of training or perhaps soon after graduation as invalids, all because the proper measures were not taken to protect them?

Dr. Fishberg calls attention to an analysis of the morbidity of the personnel of the Brompton Hospital in London, which, in the middle of the last century, was cited widely as evidence that tuberculosis is not a transmissible disease. The first report from this hospital was in 1882, the year Koch discovered the tubercle bacillus. It is well known that up to that time two schools existed, one clinging to the view of the hereditary nature and the other to the contagious nature of the disease. One should not overlook the fact that Williams' paper, published in 1882, giving the reports of the Brompton Hospital, was attacked by no less authorities than Newsholme and Cornet. Williams again reported on the Brompton Hospital experiences in 1909 (*Brit. M. J.* **2**: 433). Dr. Fishberg has also called attention to the work of Saugman, published approximately a quarter of a century ago. It seems as far fetched to quote from observations made twenty-five and fifty years ago when our knowledge of the transmission of tuberculosis was meager as it would be to quote from the excellent paper concerning malarial fever published in the *Quarterly Review* in 1824.

We have entered on a new day in tuberculosis work. Two of our most powerful weapons, the cutaneous tuberculin test and the x-ray film, did not enter into the work of Williams and Saugman as they do now. Neither was known at the time Williams wrote his first paper. Who knows how many of the individuals observed by these workers entered uninfected but became infected during the course of their work? Who knows how many of them because of their exposure to tuberculosis developed lesions which did not give the marked clinical symptoms and signs necessary for diagnosis in those days? Who knows how many of them developed lesions of a very chronic nature, which would at some time later in life, perhaps in the period of senility, discharge tubercle bacilli and make them dangerous to those with whom they associate? Such workers were working in the light of the best knowledge of their day but the light has been intensified. The difference is as great between then and now as that observed between a low power and a high power objective when studying tissue under the microscope.

Dr. Fishberg says, "I know of no evidence that the incidence of tuberculosis in medical schools is higher than that of other

young men and women." As students of nursing are also being considered, I would like to cite the splendid paper by Whitney, published in the *American Journal of Nursing* in August, 1928, in which she pointed out that the incidence of tuberculosis among nurses in training is one-third higher than among women of the same ages in the general population. I would also like to call attention to such articles as those by Britton and Bollman (Transactions of the twenty-fifth annual meeting of the National Tuberculosis Association) and Shipman and Davis (*Am. J. Nursing*, August, 1928). The articles by Heimbeck (*Arch. Int. Med.*, 1928 and 1931) and by Geer (*ibid.*, to be published) establish facts which seem almost unbelievable. In THE JOURNAL June 13, Opie, Landis, McPhedran and Hetherington report an alarming incidence of grave tuberculous lesions among medical students presumed to be in good health. Thus there is an abundance of evidence to prove conclusively that the incidence of tuberculin reactors and the tuberculosis morbidity among students of nursing and medicine is far too high.

Dr. Fishberg says: "As consulting physician to a theological seminary, I have seen during the past three years three cases of pleurisy and two cases of active pulmonary tuberculosis among the 200 students in that institution. Would I be justified in appealing 'with a view to stopping the onslaught of the disease among the young members' of the clerical profession?" He is not only justified but it is his duty to seek out the sources of the tubercle bacilli that have caused his five students to fall ill from tuberculosis. The sources may be in the home, they may be in the faculty, and they may be among the student body. If he has not applied the tuberculin test and made roentgen examination of every student, he may find a much higher incidence when he does so.

I have enough confidence in the courage of the students of medicine and nursing to believe that those schools and hospitals offering adequate protection against tuberculosis will not suffer a dearth of students, but that those who fail to protect their students will, as time passes, find their numbers dwindling as they deserve.

J. ARTHUR MYERS, M.D., Minneapolis.

POLYMORPHONUCLEAR CELLS AND HISTIOCYTES—THEIR ACTION IN THE PATHOLOGIC PROCESS

To the Editor:—I have just read the editorial comment on "The Histiocyte in Medicine" (THE JOURNAL, August 22). It states that "Dameshek refers to the reticulo-endothelial system as a presumptive secondary line of defense against bacteria, the first line of defense being the polymorphonuclear cells."

In a recent book (Les poisons du bacille tuberculeux et les réactions cellulaires et humorales dans la tuberculose) I have reported some personal experiments in which I showed, with R. F. Le Guyon, according to the work of Professor Borrel, that the introduction in the peritoneal cavity of guinea-pigs of an emulsion of Koch bacilli is followed by a local invasion of polymorphonuclear cells. These cells immediately attack many bacilli. Twenty-four hours after the peritoneal injection of tubercle bacilli the histiocytes appear and attack many polymorphonuclear cells, which break down because of the action of the Koch bacilli which they have attacked.

The histiocytes make by their fusion gigantic cells, including bacilli (thirty and forty-eight hours after the peritoneal injection). Polymorphonuclear cells and histiocytes phagocytize the Koch bacilli, but it is only the histiocytes, which are active for the defense, fixing the bacilli. In some cases they digest and destroy them (action of the clasmatocytes). The phagocytosis of Koch bacilli by the polymorphonuclear cells has by no means a useful effect. On the contrary, polymorphonuclear cells are destroyed by the Koch bacilli (pyknotic degeneration), and also the polymorphonuclear cells, being taken in the circulating stream, play a great rôle in the dispersion of Koch bacilli in the organism.

The action of polymorphonuclear cells and of histiocytes is therefore in many cases fundamentally different.

The polymorphonuclear cells are the agents of "circulating bacteriopexia."

The histiocytes are the agents of "fixed bacteriopexia."

The "circulating bacteriopexia," first stage of reaction of the organism toward the bacteria, is in many cases (especially when the infectious agents are acid-fast bacilli, on which the polymorphonuclear cells have no digestive action) not at all a process of defense. "Inflammation has in no manner a good effect in tuberculosis." And it is therefore impossible in many cases to consider the polymorphonuclear reaction as a first line of defense.

I cannot develop that statement here but I may say that it is a consequence of many personal experiments, and of the experiments of many other workers in laboratories in the United States and in France.

And I must say also that in many diseases, in most of them perhaps, the cure, the restitution to health, is not associated with bacterial destruction (Noël Fiessinger). Bacterial destruction, or cellular destruction or both (for example, polymorphonuclear destruction by Koch bacilli and Koch bacillus destruction in the organism) may have a bad influence, because they liberate toxic fractions or fractions which may give severe allergic reactions.

JEAN ALBERT-WEIL, M.D.,
Béziers, Hérault, France.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE INTERNATIONAL MEDICO-LEGAL ASSOCIATION

To the Editor:—I have had some correspondence from the International Medico-Legal Association, 330 South Wells Street, Chicago, soliciting membership in this organization. I should like to know if this is a recognized organization, and something of the personnel of same. So far, I have not been able to get very much information in regard to this, and I want to know something about it before I accept membership in it.

M.D., Illinois.

ANSWER.—The International Medico-Legal Association was chartered under the not-for-profit act of Illinois, Aug. 28, 1931, and the articles of incorporation were recorded in the office of the Recorder of Deeds of Cook County, September 28. The incorporators, who apparently are also the officers and directors, are Drs. Bernard P. Conway, Charles K. Barnes and Charles E. M. Fischer. Dr. Conway, who is the president, was graduated by the Chicago College of Medicine and Surgery in 1914 and licensed to practice in Illinois the same year. He is a member of the Chicago Medical Society but has not qualified as a Fellow of the American Medical Association. According to the Chicago "Medical Blue Book," Dr. Conway is president of the Chicago Hospital. This establishment is one that the American Medical Association does not include in its register. Dr. Charles K. Barnes, vice president and treasurer, was graduated by the Medical School of Northwestern University in 1925 and licensed to practice in Illinois the same year. He, too, is a member of the Chicago Medical Society but not a Fellow of the American Medical Association. He is described on the letterheads of the International Medico-Legal Association as Chief-of-Staff of the Auburn Park Hospital, which, also, is an establishment that the American Medical Association does not include in its register. Dr. Charles E. M. Fischer holds a diploma from the Chicago College of Physicians and Surgeons, 1907, and a license to practice medicine in Illinois of the same year. His specialty is clinical pathology. Dr. Fischer is a member of the Chicago Medical Society and, through that, has qualified as a Fellow of the American Medical Association. Dr. Fischer operates certain clinical laboratories, known as the Fischer Laboratories, Inc. These laboratories the American Medical Association has declined to register as acceptable clinical laboratories. In the Chicago "Medical Blue Book," Dr. Fischer is described as an "honorary member of the Chicago Association of Detective Sergeants and member Criminology Committee of same." The articles of incorporation of the International Medico-

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Legal Association are silent as to the qualifications of members and the amount to be paid as dues. Ordinarily, the qualifications, rights and obligations of members, the amount payable as dues, and times and places of meetings might be learned from the by-laws, but a request to the secretary of the association for a copy of them has elicited no response. Persons are being elected by the directors, or under their supervision, as Fellows, Honorary Fellows, and Members of an Honorary Executive Board, without the knowledge or consent of the persons so elected. After election, certificates of fellowship or honorary fellowship are sent, and those who are elected as Fellows, or some of them, are requested to send $10 to the secretary of the association. Those who are elected as Honorary Fellows are apparently not being solicited for financial support. No evidence has been found, other than its name, to give this organization an international character. The purposes of the association as stated in its articles of incorporation are "to associate members of the Medical and Legal professions for the co-operation of all such members in a study of the problems of each" and "to maintain a research and information bureau for our members to distribute among our members data relative to medicolegal subjects." It would seem to be the part of wisdom for persons who are invited to identify themselves with this organization, or any other organization without established standing, to demand, before they accept such invitations, copies of its by-laws or specific information as to how and when such by-laws are to be promulgated and what voice individual members are to have in framing them, for the by-laws go a long way toward determining the rights, duties and liabilities incident to membership.

TEMPORARY STERILITY PRODUCED BY THE ROENTGEN RAY

To the Editor:—A woman, aged 31, married, with no children, developed last March, in the left lung, a condition which I believe to be protracted unilateral bronchopneumonia of lobar distribution. She still has slight fever, pain in the chest at the left base, no loss in weight, no cough, and she tires easily. Roentgenograms are negative. At the left base one hears showers of loud, moist râles. She has also severe dysmenorrhea. She is from ten days to two weeks late with each period and during this time has higher fever and increased pain in the chest. I have taken her to an excellent gynecologist, who advised putting the pelvis at rest for from four to six months by a sterilizing dose of x-rays. The patient fears this, as she wants children. She has consulted two roentgenologists. One assured her that there was no danger but the other would promise her nothing. I am sure that if her periods could be stopped for a while she would recover from the chest condition. Is there any danger of permanent damage to the ovaries if the procedure is carried out by one who has had experience in this work? Can the dose of x-rays be regulated so as to give within certain limits a period of rest of three, six or twelve months as desired? Have there been any bad results? Is there danger of blastophthoria? I have no knowledge of this "treatment" and do not know how to advise my patient. Please omit name.

M.D., Michigan.

ANSWER.—There are many gynecologists and roentgenologists who maintain that the use of the roentgen rays to produce temporary amenorrhea may sometimes result in complete cessation of menstruation and sterility; but there are at least a few roentgenologists who have had sufficient experience with irradiation of the ovaries to assert that the effect of the x-rays on the gonads can be controlled with a great degree of certainty. These roentgenologists have employed the x-rays not only for the purpose of producing temporary amenorrhea but also for stimulating ovulation and overcoming amenorrhea and sterility. Success in the latter cases is due to the stimulating effect which small doses of x-rays have on the ovaries. Excellent results have been seen in both classes of cases. In young women it is usually difficult to produce permanent amenorrhea even with large doses. The nearer the menopause, the more likely is cessation of menstruation to be permanent. It not infrequently happens that pregnancy follows an attempt to produce sterility by means of the x-rays. When temporary sterility is produced by the x-rays, the ova which are not damaged mature after the effects of the x-rays have worn off. These ova, when fertilized, nearly always result in the birth of a healthy child. Occasionally for the first few months after the use of x-rays to produce sterility, ovulation persists. If an ovum is fertilized during this time, there is a possibility that it may not be normal. Hence contraceptive measures should be taken for a few months after the roentgen treatments. However, the ova which ripen after the effects of the x-rays have worn off, that is, after the amenorrhea ceases, are practically always normal and, if they are fertilized, normal offspring are usually born. A few gynecologists maintain that ova which are fertilized after the cessation of a roentgen castration not infrequently result in monsters, but most gynecologists and radiologists maintain that there is no definite connection between the roentgen castration and the birth of monsters. On the other hand there is unity of opinion that prolonged irradiation for therapeutic purposes in the early months of an existing pregnancy frequently results in the birth of a deformed child. Since not all the factors involved in the action of the x-rays on the ovaries are known, it is best to be cautious and have the treatment given by a skilled roentgenologist who has had experience with temporary roentgen castration.

INTERCOSTAL NEURITIS

To the Editor:—A man, aged 59, has intercostal neuritis of three years' standing. I had the nerves severed ten months after the onset, which gave relief for two months. Since then the pain has grown worse and requires morphine at times. The patient is in perfect health otherwise. All foci of infection have been removed. Is there anything that will relieve this pain, except opium? I have tried all the usual coal tar and barbital preparations. He has been advised to have a laminectomy to sever the sensory roots. Please advise.

M.D., Arkansas.

ANSWER.—Before surgery is again attempted, the pain-relieving possibility of high voltage roentgen therapy should be explored. It may be applied over the spine at the point of emergence of the affected nerve, or over the entire affected region, or to both areas, one fifth of a filtered erythema dose being given every week for three or four successive weeks. The analgesic value of perineural or intraneural injections of from 5 to 10 cc. of sterile physiologic sodium chloride solution with 0.5 per cent procaine hydrochloride should next be determined. The therapeutic result of such injections does not so much depend on the local anesthetic, the transient effect of which is chiefly of value to lessen the pain of the procedure itself, as on the local "alterative" action of the artificial edema and consecutive hyperemia. Possibly the mechanical loosening of perineural adhesions may also be of importance in the permanent effects secured in some cases by this treatment. Should surgery be resorted to, extraction of the nerve will probably render laminectomy unnecessary. An incision is made parallel to the vertebral column and about 5 cm. from the median line. After the intercostal spaces have been exposed and the intercostal muscles divided, the nerve is separated from the blood vessels, which lie above. The nerve should then be taken out for a considerable distance in both directions.

HYPERSENSITIVENESS TO TOXOID

To the Editor:—Before using diphtheria toxoid for immunizing older children and adults, it is recommended that a small amount of dilute toxoid be injected intradermally as a test for protein reaction. As the Schick test is the same procedure with dilute toxin, why are the results interpreted differently?

WALTER J. ROBBINS, M.D., New Britain, Conn.

ANSWER.—Diphtheria toxin and toxoid are not the same substance and individuals do not react to the two in the same manner. Some have advocated the intracutaneous injection of small amounts of the toxoid solution as a test for hypersensitiveness, but it is not generally insisted on. The control test, as carried out in the Schick procedure, serves as an indication of susceptibility to proteins in the toxin solution and may be used as a substitute for the injection of dilute toxoid solution in determining susceptibility of individuals to proteins in the toxoid solution.

BURNS DUE TO SOLUTION IN ELECTROLYSIS TANK

To the Editor:—I do the industrial accident work for a local steel mill where the following formula is used in an electrolysis tank: To each gallon of water there is added 6 ounces of copper cyanide, 8 ounces of sodium cyanide and 1 ounce of sodium sulphate. The men do not touch the solution, but they frequently get a few drops on their arms. Deep burns are caused by it. What is the best solution to prevent the burns and what is the best treatment for burns? Please omit name.

M.D., Ohio.

ANSWER.—This problem is not easily solved. It is somewhat unpractical to expect workmen to wear long-sleeved, impervious gloves regularly. Two suggestions, however, have recently been made that offer some promise in the way of prevention:

1. Sulphur soaps, applied as a lather to the hands and forearms, are said to change over the irritating cyanides to the nonirritating sulphocyanates. The sponsors of this form of medicament recommend the washing up of the hands and forearms three or four times daily, allowing some of the soapy material to dry on the skin. This sulphur is said to act as a preventive measure and also to constitute acceptable treatment if cyanide burns take place. In a few large industries where cyanide plating is done on a large scale, dermatoses from this cause have largely been eliminated. The evidence in support of these claims is not yet well established.

2. The second preventive measure is found in the use of alkaline soap, which is superfatted. The spreading of this superfatted soap, which may be applied like any ointment, is followed by a drying down to a firmer layer on the skin than is true for ordinary ointments. The action of this superfatted soap is largely mechanical, serving as a protective layer between the skin and the offending chemical. It may be necessary to apply this soap more than once during the usual work period of eight hours.

Rarely, the skins of workmen are irritated by the sulphur in the colloidal sulphur soap, and the soap itself is the superfatted preparation described.

PRESENCE OF SPERMATOZOA AFTER LIGATION OF VAS

To the Editor:—I have a patient who had both of his vasa deferentia ligated and cut during the last week of May, 1931. Once a week during June, I sent his seminal fluid, obtained by means of a condom during intercourse, to the Rhode Island State Laboratory. Each specimen contained a large number of spermatozoa of normal shape, though there were many less in the specimen taken during the last week of June. The persistent presence of these spermatozoa was a severe disappointment to the patient. How many ejaculations must occur after the Steinach operation before spermatozoa disappear? Please omit name.

M.D., Rhode Island.

ANSWER.—No reliable references are available as to the limit of time within which spermatozoa may appear in the ejaculate following ligation of the cords. The possibility also has to be considered that the interruption of continuity of a cord may not be complete. The mere presence of spermatozoa does not indicate the probability of fecundation. Lack of motility and morphologic abnormalities, such as splitting of the heads and breaking of the tails, also militate against the probability of fecundation.

POSTOPERATIVE HYPERTHYROIDISM

To the Editor:—A man, aged 51, was operated on at the Mayo Clinic ten years ago for exophthalmic goiter. Six weeks ago there was onset of palpitation, loss of weight, diarrhea and sugar in the urine. His basal metabolism rate is (Benedict) plus 29 per cent and (Du Bois) plus 23 per cent. What is the latest idea concerning iodine treatment in these cases? What chance have I to return the remnant of the gland to normal with compound solution of iodine and to hold it there? Also, will you inform me of the latest ideas in roentgen administration to the remnant of the gland. Are there any other treatments except operation that hold forth some chance of success?

C. C. CURTISS, M.D., Syracuse, N. Y.

ANSWER.—It is generally accepted that the iodine treatment of these cases merely results in temporary improvement and is liable to be followed by ultimate aggravation of the condition. Roentgen therapy offers a good chance for improvement and even cure, provided the glandular hypertrophy is radiosensitive, as it is likely to be in recently developing cases, as the one under discussion seems to be. To secure permanent results, it is also necessary to investigate the cause of the hypertrophy. This may be found in focal infection, as of the teeth or the tonsils. To the patient "intolerable" social conditions are frequently the exciting cause, which must be remedied by either removing what is intolerable to the patient or rendering the individual more tolerant by appropriate psychotherapy.

HEADACHE RELIEVED BY INTRANASAL APPLICATION

To the Editor:—Is there any diagnostic significance when headache is relieved by the nasal application of cocaine (to the middle meatus)? For example, a patient is being examined in the office (complaining of headache) and during the routine examination the nasal mucosa is shrunk with epinephrine and cocaine. The headache is relieved. Would this throw the balance of evidence to the sinus as the etiologic factor? Please omit name.

M.D., West Virginia.

ANSWER.—When a headache is relieved by the application of cocaine to the middle meatus, it often means that the headache is of the so-called vacuum type as originally described by Drs. Ewing and Sluder, resulting from a partial or complete occlusion of the nasofrontal duct. It may also mean that a pressure headache resulting from intimate contact of the middle turbinate with the lateral nasal wall has been present, and the shrinking of the mucosa has relieved this pressure. Sometimes the pressure is due to contact of the middle turbinate with the nasal septum, particularly the upper portion known as the tuberculum septi. In these cases the cocaine or epinephrine is introduced between the turbinates and the septum, causing some contraction of the blood vessels in this location, which lessens the contact and pressure and thus relieves the headache.

HIGH PULSE RATE IN A YOUNG GIRL

To the Editor:—I am treating a girl, aged 13, for typhoid. Her illness began May 4 and ran a typical course, lasting five weeks. Her fever, which was between 104 and 105 for three weeks, was controlled by frequent cold sponges and packs. She was given a liberal diet and did not suffer complications, weighing as much at the end of six weeks as at the beginning of her illness. A gradual convalescence has been maintained, but the pulse keeps persistently up in the nineties, ranging from 80 to 104. The blood pressure is systolic 110, diastolic 65. A slight simple goiter, which she has had for some time, enlarges noticeably at the time of her menses and the pulse is usually over 100 at this time. The rapid pulse does not cause symptoms; the heart sounds are normal. Should I allow this patient to assume her regular routine and return to school even if the pulse keeps up? Might this pulse rate be normal for a rapidly growing and developing girl? Would you suggest any further medication? Please omit name.

M.D., North Dakota.

ANSWER.—In this case the persistent tachycardia might be associated with the simple goiter. A basal metabolism test should be done to exclude hyperthyroidism. If there are no signs of myocarditis, digitalis should be discontinued. Although the pulse rate might be normal for a rapidly growing developing girl, it usually is not that high. From a therapeutic point of view, gradually increasing exercises should be ordered before the child is permitted a full routine. Assuming that the basal metabolism does not give evidence of hyperthyroidism, some authorities would not hesitate to give such a patient small doses of iodine, such as compound solution of iodine, 0.06 or 0.12 cc. (1 or 2 minims) three times a day. If iodine is given, the patient should be watched carefully.

DURATION OF IMMUNITY TO RABIES

To the Editor:—A man, aged 30, received seventeen months ago a full treatment of rabies vaccine, having had a chance for infection. Yesterday he handled another dog with rabies, the slobbers of which may have gotten into an inflamed hangnail on the thumb. May I expect an immunity given by the treatment seventeen months ago or would it be necessary to give another for safety's sake at this time. How long does rabies treatment insure immunity?

MERRILL S. DAVIS, M.D., Marion, Ind.

ANSWER.—It is not known and it cannot now be told how long the immunity from the treatment against rabies will persist. Experimental work with dogs would indicate that a course of treatments affords protection for eighteen months in that animal. In man the time is said to be shorter. Park describes a case in which the immunity did not last fourteen months. The man, employed in a hospital for dogs, received an eighteen course treatment after a slight wound from a rabid dog. Thinking himself then immune, he became careless and put his abraded hand into the mouth of a rabid dog. Six weeks later he developed hydrophobia—fourteen months after his course of treatments.

SUITABLE OIL FOR USE IN NOSE

To the Editor:—Please send to me a formula for an all round "nose oil" to be used in acute coryzas and similar conditions in children. Please omit name.

M.D., California.

ANSWER.—One of the simplest preparations is that of liquid petrolatum (light), which is a bland oil and has a soothing effect on mucous membranes. The addition of 1 minim of oleum thymi and 1 minim of oleum pini pumilionis to 1 ounce of oleum paraffini albi makes a pleasant, slightly aromatic preparation. This may be used several times a day, and is especially nice for children's noses.

EMETINE NOT INDICATED IN PEPTIC ULCER

To the Editor:—Could you tell me about the efficacy of emetine hydrochloride intravenously for the treatment of duodenal ulcer? One of my colleagues claims that he has had excellent results proved by the x-rays.

L. H. SALVATI, M.D., Westfield, N. J.

ANSWER.—There is no rational basis for the use of emetine in peptic ulcer. Its intravenous use is so dangerous that it is generally condemned.

ALCOHOLISM AND EPILEPSY

To the Editor:—Is chronic alcoholism in the father ever a cause of epilepsy in his children when there is no family history of epilepsy? Please omit name.

M.D., Ohio.

ANSWER.—It has never been established that epilepsy can be inherited because of alcoholism in a parent.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination for Group III candidates to be held in eighteen cities in the United States and Canada, Oct. 31. *Clinical examination for all candidates.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

ARKANSAS: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, Nov. 10-11. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 10. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Eureka Springs, Nov. 10. Sec., Dr. Allison A. Pringle, Eureka Springs.

CALIFORNIA: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Regular.* Hartford, Nov. 10-11. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic.* New Haven, Nov. 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

FLORIDA: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

IOWA: Des Moines, Oct. 20-22. Dir., Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MAINE: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

MINNESOTA: Minneapolis, Oct. 20-22. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul.

NEBRASKA: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NEVADA: Carson City, Nov. 2-4. Sec., Dr. Edward E. Hamer, Carson City.

NEW JERSEY: Trenton, Oct. 20-21. Sec., Dr. James J. McGuire, 1101 Trenton Trust Bldg., Trenton.

SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 503 Saluda Ave., Columbia.

TEXAS: Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

WEST VIRGINIA: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: *Reciprocity.* Milwaukee, Oct. 21. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

Minnesota June Report

Dr. E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 16-18, 1931. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Thirty candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states, and 1 physician was licensed by the endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1929)	93.1
Georgetown University School of Medicine		(1928)	89.5
University of Michigan Medical School		(1927)	93.6
University of Minnesota Medical School (1930) 89.2,* 91, 93.2,* (1931) 84.6, 86.4, 88.1, 88.4,* 88.5,* 89.3,* 89.4,* 90.2, 91.5,* 91.5,* 91.5,* 91.6,* 91.6, 92.2,* 92.4,* 92.5,* 92.5, 94, 94.1,* 95.2*		(1929)	95.1,
Marquette University School of Medicine		(1927)	95.4,
University of Wisconsin Medical School		(1928)	97.5
		(1929)	93.6

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine		(1928)	Colorado
Loyola University School of Medicine		(1930)	Illinois
Northwestern University Medical School		(1929)	Wisconsin
Rush Medical College		(1927)	Nebraska
University of Tennessee College of Medicine		(1930)	Tennessee

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
University of Minnesota Medical School		(1930)	N. B. M. Ex.

* These applicants have received their M.B. degree and will receive their M.D. degree on completion of one year's internship in a hospital.

Maryland June Examination

Dr. Henry M. Fitzhugh, secretary, Maryland Board of Medical Examiners, reports the written examination held at Baltimore, June 16-18, 1931. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. One hundred and twenty-five candidates were examined, 122 of whom passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine		(1928)	81.8
Georgetown University School of Medicine (1931) 85.4, 85.5, 87.4, 87.7, 88.3, 88.4, 90.7		(1930)	76.3,
George Washington University School of Medicine		(1930)	85, 85.3,
		(1931)	86.2, 88, 88.7, 89.2, 89.4, 89.8
Howard University School of Medicine		(1929)	82.7,
		(1930)	77.7, 79.6, 80.2, 82.3, 83.7, 84.4, 89.2, (1931) 85.1
Emory University School of Medicine		(1929)	89.6
Rush Medical College		(1931)	91.7*
Johns Hopkins University School of Med.		(1929)	87.4,
		(1930)	80.4, 85, 86.8, 87.1, 87.3, (1931) 81.5, 82.7, 83.2, 83.8, 84.1, 84.4, 84.8, 85.3, 86.4, 86.5, 86.6, 87.1, 87.4, 88.2, 88.8, 89.2, 89.7, 90.3, 90.8, 90.8, 92.2, 92.4, 93.1, 93.4, 94.7,
University of Maryland School of Medicine and College of Physicians and Surgeons		(1927)	87.6,
		(1929)	89,
		(1930)	77.7, 84.8, 87.3, 87.6, 89, 91.1, (1931) 83.2, 84.5, 85.4, 86, 86, 87.1, 87.2, 87.4, 87.6, 87.6, 87.6 87.8, 88.2, 88.3, 88.5, 88.6, 88.6, 88.8, 88.8, 89, 89.1 89.1, 89.2, 89.4, 89.4, 89.6, 89.7, 89.7, 89.8, 89.8, 90.1, 90.7, 91, 91, 91.7, 91.8, 92, 92.7, 92.8, 94.6
Washington University School of Medicine		(1929)	86.7
University of Rochester School of Medicine		(1930)	80.1, 82.1, 83.6, (1931) 91.3
Jefferson Medical College of Philadelphia		(1931)	87.3, 87.5, 90.7
University of Pennsylvania School of Medicine		(1928)	85.7
Mcharry Medical College		(1929)	79.5
Medical College of Virginia		(1930)	84.2
University of Virginia Department of Medicine		(1931)	84.8
University of Toronto Faculty of Medicine		(1925)	86.8
McGill University Faculty of Medicine		(1928)	85.7
University of Berne Faculty of Medicine, Switzerland		(1931)	88.2†

College	FAILED	Year Grad.	Per Cent
Howard University School of Medicine		(1930)	70, 72.7
University of Berlin Faculty of Medicine		(1922)	78.5‡

Dr. Fitzhugh also reports 9 physicians licensed by reciprocity with other states, 4 physicians licensed by the endorsement of credentials, and 1 physician licensed by special examination, from Feb. 11 to July 16, 1931. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1917)	California
Indiana University School of Medicine		(1925)	Indiana
College of Physicians and Surgeons of Baltimore		(1893)	N. Carolina
University of Maryland School of Medicine and College of Physicians and Surgeons		(1929)	New York
Ohio State University College of Medicine		(1929)	Ohio
Medical College of Virginia		(1912), (1929)	Virginia, (1928) Penna.
University of Toronto Faculty of Medicine		(1923)	Penna.

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
College of Medical Evangelists		(1930)	N. B. M. Ex.
Johns Hopkins Univ. School of Med.		(1925), (1926), (1927)	N. B. M. Ex.

College	SPECIAL EXAMINATION	Year Grad.	
University of Berlin Faculty of Medicine		(1919)	†

* This applicant has received a four-year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.
† Verification of graduation in process.
‡ Failed in obstetrics.

Book Notices

BIOASSAYS: A HANDBOOK OF QUANTITATIVE PHARMACOLOGY. By James C. Munch, Director of Pharmacological Research, Sharp and Dohme. Cloth. Price, $10. Pp. 958, with 18 illustrations. Baltimore: Williams & Wilkins Company, 1931.

A few decades ago it was considered heretical for the Pharmacopeia to have any assays other than chemical. Today no modern work dealing with determinations of the potency of drugs is complete without the assays of those indefinite but active mixtures so widely used in medicine, such as digitalis, pituitary and ergot. The important place that has been assumed by bio-assays is revealed in the issuance of this book of nearly a thousand pages dealing with only that portion of pharmacology. The book cannot be classed with such critical works on pharmacology as those of Cushny, Edmunds and Gunn, and Sollmann. It should be looked on in much the same relation to the pharmacologic library as Beilstein is looked on by chemists. It is a compilation that required a prodigious amount of bibliographic work. In the descriptions, the various methods of bio-assays are briefly given with complete references to the original literature. The author, however, does not appear to have incorporated in his work the critical judgment so that one might determine what he feels is the preferred method. His summaries remind one more of an accountant's sheet rather than the work of a critical analyst. The book is a well arranged guide to the physician interested in quantitative pharmacology, as well as one who is well versed in that subject. The author has followed the plan of subtly suggesting to the worker to acquaint himself with the original literature once he has decided to enter on a specific pharmacodynamic experiment. That Dr. Munch is familiar

with the Pharmacopeia and all its methods of assay is shown repeatedly. This is probably due to the number of years of contact which he had while in the service of the government working on pharmacopeial subjects. In the preface the author says: "In writing this book, I have attempted to condense the vast amount of information published previous to 1930; to present suitable methods of quantitative pharmacology (bioassays); to focus attention upon the accuracy of experimental results; and to prevent unnecessary duplication of efforts." He has accomplished that purpose in a commendable manner.

EXPLORATION FONCTIONNELLE DES REINS. Par H. Chabanier et C. Lobo-Onell. Avec la collaboration de M. Lebert et E. Léiu. Préface du Professeur Legueu. Paper. Price, 70 francs. Pp. 569, with illustrations. Paris: Masson & Cie, 1930.

Although writing with the broad theoretical aspects of the subject in mind, the authors have striven to make this volume practical in its applications. They pass from a review of the development of our present conceptions as to the significance of the blood and urine examination in normal and pathologic kidney states to an exposition of their own views regarding the evaluation of kidney function. It is hardly surprising that they stress the work of Ambard. It must be pointed out, however, that their references are largely to the French literature. The volume is divided into two main parts. The first, which is concerned with diagnosis, deals with the investigation of the function of the combined and separate kidneys. This portion also contains a critical analysis of the theories of urinary secretion, and finally the authors' scheme for the clinical investigation of kidney function. The second part deals with prognosis from the medical and surgical points of view. The subject matter is arranged in an orderly fashion and is well headed and indexed. Although not all will agree with the conclusions drawn by the authors, they have presented a scholarly and critical work which should be of real interest particularly to those whose special interests lie in this field.

AMERICAN PHYSICIANS AND SURGEONS: A BIOGRAPHICAL DIRECTORY OF PRACTICING MEMBERS OF THE MEDICAL PROFESSION IN THE UNITED STATES AND CANADA, INCLUDING SUPPLEMENTS IN WHICH ARE LISTED AND CLASSIFIED THE LEADING HOSPITALS, SANITARIUMS AND HEALTH RESORTS OF BOTH COUNTRIES. Edited by James Clark Fifield. Leather. Price, $30. Pp. 1737. Minneapolis: The Midwest Company, 1931.

The foreword of this volume states that the book "is offered as a biographical directory of contemporary members of the medical profession who are, at time of going to press, in active practice in the United States and Canada, and who, by reason of their high attainments, skill and reliability, are especially entitled to inclusion in such a book." The publisher expresses the hope that the book will be a valuable source of information to the layman in particular, and incidentally to physicians "who may desire to use it as a guide to aid them in securing competent, safe and reliable medical service." Mr. James Clark Fifield, the editor, is also the editor of a simllar book published in the legal field, known as "The American Bar." The book seems to be commendably free from any commercial taint, and the men whose brief biographies appear were not under the slightest obligation to subscribe for the book. "American Physicians and Surgeons" differs from an ordinary medical directory, first, in the fact that it lists only a selected group of physicians, all of whom must be in the active practice of their profession, and, secondly, in that the data are considerably more extensive than the mere date and place of graduation and license, specialty and society membership. As the biographic material has obviously been furnished by the physicians themselves, and as Mr. Fifield is not a physician, the fact that the biography of one doctor in the Middle West states that he has a "Life Fellowship" in the "Society of Science, Letters and Arts of London" becomes merely a matter of amusement. The Society of Science, Letters and Arts of London, as the Bureau of Investigation of the American Medical Association has repeatedly shown, was a serio-comic fake operated by one Albert Sturman, who sold fellowships to such individuals as were willing to pay $5 for the privilege of putting the mystic letters "F.S.Sc. (Lond.)" after their names. Such persons as Brinkler, the "food expert," Lloyd, of consumption-cure notoriety, Jesse A. Case, the mail-order rheumatism specialist, B. F. Bye, the cancer curer, Willard H. Morse, the professional testimonial-giver, and many others of that ilk have been "fellows" of this alleged society. Doubtless in subsequent editions the publisher will scan a little more closely the scientific status of the societies to which physicians who are accepted for inclusion in the book claim to belong.

There is no general alphabetical index of the physicians whose names are listed in the book, which seems unfortunate. It is necessary to know the location of any given doctor before one can look up his biographic data. Physicians' names are alphabetically grouped under the towns or cities in which they live. Such cities are also alphabetically grouped under states similarly grouped. At the beginning of each state list there is a classification of the physicians in that state arranged according to specialties, which are listed alphabetically. Under these specialties is an alphabetical list of the cities in which are the men practicing such specialties. At the end of the book there appears a selected list of general and special hospitals and sanatoriums of the United States and Canada; following this is a list of American health resorts tabulated alphabetically by states.

BIBLIOTHÈQUE DE FILMS RADIOGRAPHIQUES. Publiée sous la direction de Henri Béclère et Pierre Porcher. Série 11: La périostite ossifiante (30 images). Par le Dr. Prhu et le Prof. Policard. Price, 25 francs. Radiographic films. Paris: Masson & Cie, [n. d.].

BIBLIOTHÈQUE DE FILMS RADIOGRAPHIQUES. Publiée sous la direction de Henri Béclère et Pierre Porcher. Série 13: Radiodiagnostic gynécologique. A. Morphologie utérine (30 images). Par le Dr. Claude Béclère. Price, 25 francs. Radiographic films. Paris: Masson & Cie, [n. d.].

BIBLIOTHÈQUE DE FILMS RADIOGRAPHIQUES. Publiée sous la direction de Henri Béclère et Pierre Porcher. Série 28: Lésions traumatiques du poignet (30 images). Par les Drs. Jean Quénu, G. Haret et A. Darlaux. Price, 25 francs. Radiographic films. Paris: Masson & Cie, [n. d.].

These films, of ordinary cinematographic size, are put up in small metallic holders, each comprising several series of roentgenograms on a given subject. The strips may be taken out of the album to be studied by direct observation or by projection in a moving picture machine. A special metal frame of standard size is given so as to place the films in any moving picture machine. Drs. Béclère and Porcher have prepared a series of films with the collaboration of a group of well known French physicians distinguished in the several branches of the profession to illustrate such conditions as cancer of the stomach, tumors of the mouth, diverticula of the duodenum, deformities of the stomach, gastric ulcer, mastoid disease, and a large variety of bone lesions. An attractive section is devoted to gynecologic radiodiagnosis. Cholecystography, dental radiography and a large number of other subjects have been included in the series already out or about to be published. The films sent include series 11, on ossifying periostitis, series 13, on uterine morphology, and series 28, on traumatic lesions of the wrist. The reproductions are excellent. These albums should find a wide circulation.

SEEING: A PARTNERSHIP OF LIGHTING AND VISION. By M. Luckiesh, D.Sc., Director, Lighting Research Laboratory, General Electric Company, Nela Park, Cleveland, and Frank K. Moss, E.E., Lighting Research Laboratory, Nela Park, Cleveland. Cloth. Price, $5. Pp. 267, with illustrations. Baltimore: Williams & Wilkins Company, 1931.

The purpose and aim of this unusual book are explained in the preface: "Seeing depends upon light and lighting as well as upon the eyes and the visual sense. Excellent scientific data are available pertaining to vision; but very generally light and lighting have not received much consideration as a partner of the visual sense. We have summarized the results of an extensive series of researches planned to establish the foundation of a science of seeing. Also, we have attempted to coordinate and interpret the data so as to be of practical value in utilizing light to aid human beings to see better and more easily, thereby conserving their eyesight and increasing their usefulness." The nineteen chapters of the book deal with the fatigue and lowered visual efficiency of insufficient and improper illumination from the clinical, industrial and experimental standpoint and with the various phases of light and lighting necessary to increase visual efficiency and human comfort. The results of an enormous amount of experimental work are adduced to prove points in question and the ways and means of improving faulty conditions are pointed out. Graphs, tables and illustrations are used profusely but so simply that a knowledge of higher mathematics is not needed by the reader. A small bibliography points the way to necessary reference reading. A short supplement contains

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optical illustrations and practical demonstrations. The repeated phrase "optometrists and other eye specialists" is objectionable, but otherwise the book is to be commended.

DIE TUBERKULOSE UND IHRE GRENZGEBIETE IN EINZELDARSTELLUNGEN: BEIHEFTE ZU DEN BEITRÄGEN ZUR KLINIK DER TUBERKULOSE UND SPEZIFISCHEN TUBERKULOSEFORSCHUNG. Herausgegeben von L. Brauer und H. Ulrici. Band IX: Allgemeine Epidemiologie der Tuberkulose. Von A. Gottstein. Paper. Price, 10.80 marka. Pp. 123, with 14 illustrations. Berlin: Julius Springer, 1931.

This short and scholarly contribution to the epidemiology of tuberculosis is divided into thirteen parts, with a short introduction. In the "Measure of Epidemiology," Gill's genesis of epidemics and the natural history of diseases is discussed. In diseases as varied as influenza and malaria, four factors play their parts: the reservoir of the infective agent, the potency of the parasite, the factor of immunity, and the possibility of conveyance. These narrow down in tuberculosis to the amount of infection and of immunity. In all epidemic contagious diseases the frequency, the duration, the result and the connection with certain ages of the persons afflicted are all important factors and in these respects tuberculosis leads all other infectious and epidemic diseases. The epidemiology of tuberculosis is best understood when the disease incidence is classified according to age. In infancy, tuberculosis behaves like an acute infectious disease, with a high mortality and a tendency to generalization. Its course shows how man would have reacted to the bacillus, in the absence of some kind of resistance. In infancy, infection is disease. Contact with consumptives, as in family life, is the chief source of infection. In addition, in an appreciable number of cases feeding with cow's milk containing the bovine bacillus plays a part. The epidemiologic significance of tuberculosis in infancy is negligible. In older children, organ localization is more defined; infection often occurs without apparent disease manifestations; the tendency is toward quiescent infection in most instances. The results of childhood infection depend on whether dosage has been slight or has been repeated and massive. Immediately after puberty the mortality curve rises sharply, especially in females. The original teaching was that quiescent tuberculosis of children flared up in the adult. A later conception, undisputed until recent times, was based on specific immunity reactions. The doctrine of the protective action resulting from childhood infection should not be adhered to in epidemiologic studies. A process of natural selection in the course of many generations has eliminated weaker children before they are able to transmit their inferiority. Tuberculosis in adult life is explained as being due to a loss of personal resistance. The important epidemiologic problem is that of adults, among whom 80 per cent of all deaths from tuberculosis occur in males and 70 per cent in women. While it is shown that the deaths from tuberculosis are higher in young women than in young men, it is only a question of a shift which equalizes itself later on. In the total money loss of wage earners aged from 15 to 55 years, that due to tuberculosis represents 80 per cent. Factors that effect the fluctuations of mortality in this disease are divided into genetic and "peristatic," the latter including change of constitution due to external and environmental agencies. Life insurance companies have long recognized familial frequency of tuberculosis. They have also recognized questions regarding stature and growth for the symptomatic significance of which series of figures are available. The factors of occupation, housing and life in the city or the country are all complex. Attention should be paid to economic conditions but especially to the early diagnosis, to early treatment and to adequate after-care. The average duration of pulmonary tuberculosis, from the time of recognition, is given as from three to four years. Even today, 70 per cent of wage earners die within three years. The effect of the World War is noted in regard to the population of Germany. The mortality of small children and young adults increased more rapidly than that of adults. The death rate in infants was unchanged. The three main causes were the severe influenza, unusual winter weather and economic difficulties, and especially the defective nutrition. The sharp decrease of the death rate from tuberculosis from 1890 to 1900 is considered noteworthy. Improvement in hygiene, and increased knowledge of the disease, have participated.

This somewhat brief work of Gottstein reviews our knowledge of the epidemiology of tuberculosis as we visualize it today. No mention is made of the decrease in all countries of the population that is under 45, a result of the steadily diminishing general death rate. It is the population under 45 that tuberculosis especially affects. Curves showing the death rates from phthisis in London for a period of 200 years are given in Singer's Short History of Medicine, and they indicate that an epidemic of tuberculosis lasted for about 100 years and appears now to be dying out. Tuberculosis has probably disappeared almost entirely from nations more than once in the course of history. Present statistics would seem to indicate that we may again be approaching that fortunate consummation.

RECENT ADVANCES IN ANALYTICAL CHEMISTRY. VOLUME II: INORGANIC CHEMISTRY. Edited by C. Ainsworth Mitchell, M.A., D.Sc., F.I.C. Cloth. Price, $3.50. Pp. 452, with 26 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

This volume, a companion to volume I, deals with inorganic subjects, whereas volume I dealt with organic topics. The editor has followed the plan of the first, experts collaborating on the various subjects. There has been correlated considerable valuable information with regard to the recent advances in analytic methods, also indicating the original source from which more detailed instruction may be obtained. In general, this is only partially successful because of the rapidity with which new analytic procedures are forthcoming; in many instances, some are only slight modifications of old well known methods. Conspicuous by its absence is any mention of the use of the various uranyl acetate methods for the determination of sodium. Nevertheless, the book will be a valuable and reliable addition to a collection of books on analytic chemistry.

AN INTRODUCTION TO MEDICAL STATISTICS. By Hilda M. Woods, Assistant Lecturer, London School of Hygiene and Tropical Medicine, and William T. Russell, Statistical Department, Medical Research Council. Cloth. Price, 7s. 6d. Pp. 125. London: P. S. King & Son, Ltd., 1931.

The purpose of this little book is to instruct young medical students, mainly quite devoid of mathematical knowledge or interest, in the meaning and technic of the simplest operations of statistical analysis, it being premised that only a short time can be spared for this part of their training. The result is an excellent primer of statistical technic. The reader is expressly warned that mastering this book will not make him a statistician. What it will do is to give him a glimpse of what vital statistics are; how to tabulate his data; how to translate them into effective and correct graphic form; how to calculate rates of mortality and other vital events, and then to correct these rates so that the more obvious fallacies which lurk about statistics of living things may be avoided; how to calculate averages, measures of variation or dispersion, correlations, regressions, and probable errors. The book is written with simplicity and clearness. Furthermore, within its limited scope, it is sound and dependable. It can be recommended to the medical man wanting to get easily and quickly an elementary idea of the modern statistical point of view and methodology.

WE TAKE TO BED. By Marshall McClintock. Cloth. Price, $2.50. Pp. 321. New York: Jonathan Cape & Harrison Smith, 1931.

Tuberculosis has been described as peculiarly a disease of civilization; since the dawn of civilization it has taken a greater toll of human life than all the pestilences and all the wars. Only during the last generation, as the result of fundamental biologic influences or possibly to some extent of the active, organized fight against the disease, has any indication been given that it was coming under control. The death rate in the United States during the past twenty-five years has dropped from around 200 per hundred thousand to some 70 odd, and tuberculosis as a cause of death has dropped from first to sixth place. There is a tendency on the part of those interested in public health to feel that the point has been reached at which particular attention to the control of this disease is no longer necessary, and the spirit of indifference is already manifest among those interested in public health matters. Furthermore, on account of the tremendous amount of publicity that has been given to the curability of the disease there has developed a certain amount of public indifference to the problem.

No tragedy in human life has greater force than that of the development of tuberculosis. In most cases the disease strikes the individual in the period between the second and third decades

just at the time when life is at full tide. To draw such an individual suddenly from the stream of life and to throw him into the eddy of apparent inactivity necessary for a cure as a rule produces such a psychologic shock as to require all his adaptability, judgment, patience and courage. For this reason, tuberculosis remains the greatest psychologic problem with which mankind has to contend. It has been said that the toxins of tuberculosis and syphilis have been responsible for most of the geniuses the human race has developed. Granted that this is true, it is curious that literature contains no classic which describes all the emotions inherent and environmental which may be caused by this disease. The story which such a genius can tell will contain much of tragedy but at the worst will have the compensation of deep feeling which goes to make up the fulness of life.

The popular literature on the subject of tuberculosis is not especially extensive. One of the first popular books was "Ships That Pass in the Night," and another written some time back was "The Davosers." There is not space in this review for any discussion of these books further than to say that they more or less lack any deep consideration of the broader psychologic problems in the individual who has developed tuberculosis. Within a comparatively short time there have been three books dealing with the subject from a nontechnical point of view. The first, "The Magic Mountain," unfortunately deals with a morbid German psychologic attitude toward the disease and is distinctly national in its point of view. Another one, "Sanatorium," is most individualistic in its depiction of just as disagreeable Anglo-Saxon psychology. A short time ago "We Take to Bed," the subject of this review, appeared in this country. The author describes the experiences of himself and his wife at Saranac Lake. He tells the story of his experiences just as they would appear in the Sunday supplement of a popular newspaper. One has the feeling that the author either had superficial emotions or that he purposely chose to skim merely the surface of the vital experiences through which he went. As a graphic superficial story of what two individuals may go through during a sojourn at a tuberculosis resort the book is well worth reading. Any one who knows Saranac Lake will recognize all the points in regard to life there which the author brings out. He is somewhat sophomoric in his protrayal of the personalities of the doctors and nurses with whom he came in contact. He is somewhat pseudoscientific in his description of his experiences in clinical laboratory work, but he describes clearly the care and system used in sputum examinations and urinalyses. He is more inclined to show the faults rather than the virtues of the system developed by Dr. Trudeau at Saranac and so ably carried on by his successors. Even though his wife was quite ill, he makes it manifest that she had the rare feminine quality of understanding her husband and making him happy. It is well worth while to read the book.

GYNÉCOLOGIE CHIRURGICALE. Par C. Sobre-Casas, chef du service de gynécologie de l'Hôpital Torcuato de Alvear à Bueno-Aires. Préface du Professeur Jean-Louis Faure. Paper. Price, 225 francs. Pp. 770, with 966 illustrations. Paris: G. Doin & Cie, 1931.

In this book the author attempts to reproduce illustrations of different gynecologic operations. It differs from most atlases in that practically all the illustrations are reproduced from the books and articles of others. While the author is partial to the French gynecologists, particularly the venerable Faure, he does not by any means slight the Americans or Germans. Unfortunately, many drawings suffered during the process of copying or during reproduction, a large number of them being indistinct. The author has read the literature thoroughly to secure what he considers the best operative procedures. The fifteen illustrations of cervical operations for the relief of sterility might have been omitted, because most gynecologists consider these operations not only useless but actually harmful. At the end of each chapter is an extensive bibliography. In spite of the fact that this book contains 300 pages less than Crossen's last edition and has a paper cover, it is just as heavy as Crossen's book. The pages are too wide and make the book too bulky. Many operations that properly belong in a book on operative gynecology have been omitted. Among these may be mentioned operations on the bladder, ureters and intestine and the technic of local anesthesia, especially for vaginal operations. The author is to be congratulated because the book represents an enormous amount of effort. The language is clear and the book will most likely become popular in French-speaking countries. It is not, however, in a class with such excellent books on operative gynecology as those written by Crossen, Kelly and Döderlein-Krönig.

AN INTRODUCTION TO ORGANIC CHEMISTRY. By Roger J. Williams, Professor of Chemistry, University of Oregon. Second edition. Cloth. Price, $4.50. Pp. 585. New York: D. Van Nostrand Company, Inc., 1931.

This book could be used as the basis for a good course in beginning organic chemistry. It is logically arranged, well written and down to date. The chapter on carbohydrates is particularly good. That on the alkaloids is too brief. The quiz questions and problems at the ends of the chapters are well thought out. Interesting footnotes give short sketches of some of the famous early organic chemists.

LE SERVICE SOCIAL À TRAVERS LE MONDE: ASSISTANCE, PRÉVOYANCE, HYGIÈNE. Par le Docteur René Sand. Préface de M. Paul Strauss. Paper. Price, 25 francs. Pp. 250. Paris: Armand Colin, 1931.

The author is known internationally as an authority on social service work. The first few chapters contain an historical outline and describe the general principles underlying modern practice. Outlines of social service work in France, England, Germany, Italy, Russia and the United States constitute most of the book. As far as this country is concerned, nearly every activity that might be included in the rather broad field discussed appears to be mentioned. The book will be of interest to social service students.

Miscellany

THE HISTORY OF AGRANULOCYTIC ANGINA

O. H. PERRY PEPPER, M.D.
PHILADELPHIA

On the appearance of a newly described syndrome, one cannot help wondering under what diagnosis such a case would previously have been filed. This is peculiarly true of agranulocytic angina because of the spectacular nature of the local lesions, the blood changes and the rapidly fatal course of many cases.

Schultz[1] is given credit for recognizing the syndrome later named agranulocytic angina by Friedmann, but no one believes that the condition had not previously been seen. For example, an editorial in THE JOURNAL[2] quotes Türk[3] as describing, in 1907, similar cases, although he did not distinguish them from the commoner leukopenia of overwhelming infection.

Apparently there is little hope of finding any earlier reference to such cases in hematologic literature, but it would be surprising if such a startling angina had not been described. Reference to standard laryngologic works of fifty years ago seems to justify the view that it was.

In Morell Mackenzie's "Manual of Diseases of Throat and Nose"[4] under the heading "Putrid Sore Throat (cynanche maligna, angine gangréneuse)," one finds a condition defined as follows: "Primitive gangrene of the pharyngeal mucous membrane, constituting an affection *per se*, and originating independently of any other malady, such as diphtheria, scarlet fever, etc."

Mackenzie credits Gubler[5] in 1857 and Trousseau[6] in 1865 with having clearly distinguished the condition from diphtheria. Previously, "a majority of the profession were led to affirm the

1. Schultz, Werner: Deutsche med. Wchnschr. 48:1495 (Nov. 3) 1922.
2. Agranulocytic Angina, editorial, J. A. M. A. 95:1428 (Nov. 8) 1930.
3. Türk, W.: Wien. klin. Wchnschr. 20:157 (Feb. 7) 1907.
4. Mackenzie, Morell: A Manual of Diseases of the Throat and Nose, London, J. and A. Churchill, 1880.
5. Gubler: Arch. gén. de méd. 9:513, 1857.
6. Trousseau: Clin. méd. de l'Hôtel-Dieu, Paris, 1865, p. 324.

nonexistence of a primitive gangrene of the throat, but [thanks to Gubler and Trousseau] the existence of the malady has been clearly recognized, whilst the conclusion has been arrived at that the disease is an extremely rare one."

The writers of that period state that the onset of the condition is sudden, with a rapid onset of pharyngeal gangrene with fever and cervical node swelling. "It is in all instances accompanied by a remarkable prostration of the vital powers." Death usually comes "from syncope."

"On inspecting the pharynx in the first stage of the disease, the appearances are generally by no means characteristic of the approach of so serious an affection, although the peculiar foul smell of the breath may be quite perceptible. As soon, however, as the process of gangrene has commenced, the back of the pharynx, the pillars of the fauces, and the tonsils can be seen covered with discolored patches, sometimes almost black, which are slightly elevated above the surrounding surface, and, forming eschars, ultimately detach themselves from the tissues beneath. Ulcerations, variable in extent and depth, result from the separation of the sloughs. In the worst cases the disease makes constant progress in the direction of the mouth, the esophagus and the air passages, and terminates its onward course only by the death of the patient."

"Occasionally a general tendency to hemorrhage is manifested, and a persistent bleeding occurs simultaneously from the lungs, bowels, nose and mouth, and even under the skin, which becomes covered with petechiae and ultimately sphacelated at the points of ecchymosis."

"In the worst examples of the disease, the sphacelated patches can be noted in the larynx, lungs, esophagus, and throughout the alimentary tract."

The prognosis was grave, "but few cases of recovery are on record."

It is not surprising that the condition was confused with blood poisoning—in our own time the same confusion has existed. Instances of overwhelming infection of the blood stream with leukopenia have been reported as "agranulocytic angina"; also, the cart has been put in front of the horse in attributing the leukopenia of agranulocytic angina to the intensity of the anginal infection.

Naturally, one cannot look for any reports of blood counts in the publications of 1880, but it is interesting to find that Peter,[7] in 1870, in writing of gangrenous angina, describes the gross characteristics of the blood quite carefully. Unfortunately, no conclusions can be drawn from his description.

The description of putrid sore throat, which has been briefly abstracted here, seems to leave little doubt that instances of what today would be diagnosed as agranulocytic angina were included in the group diagnosed as putrid sore throat. What other condition could give a primary gangrene of the pharynx extending along the alimentary canal and leading rapidly in most instances to a fatal outcome? No doubt the diagnosis "putrid sore throat" was applied to a variety of conditions and perhaps indeed included Vincent's angina and certain cases of diphtheria, for in 1880 the diphtheria bacillus had not been discovered. Nevertheless, it seems justifiable to state that it was the occasional case of agranulocytic angina that supplied the spectacular features of the picture described under the diagnosis "putrid sore throat."

It is further interesting to note that by the beginning of the new century the textbooks of nose and throat diseases had begun to omit the heading "Putrid Sore Throat" until by the time Schultz described the syndrome there was no description in the textbooks which corresponded at all to the picture of agranulocytic angina. In the recent books, of course, this omission is being rectified by the description of the syndrome under its present name.

Hospital of the University of Pennsylvania.

7. Peter: Dictionnaire encyclopédique des sciences médicales, Paris, Victor Masson et Fils, 1870, p. 703.

Medicolegal

Injury to Bladder in Removal of Cervix

(Sampson v. Veenboer (Mich.), 234 N. W. 370)

Edith Sampson, the plaintiff, gave birth to a six months stillborn child. Thereafter she suffered from severe backaches and a vaginal discharge. A subtotal hysterectomy was performed by a surgeon of Flint, Mich., in the early part of 1924, and the "body" or fundus and the fallopian tubes were removed on account of their diseased condition. The cervix was not removed. After the operation, the plaintiff's condition improved somewhat but the discharge did not entirely stop. Later she and her husband moved to Grand Rapids, Mich. The plaintiff continued to suffer. After failing to obtain relief at the University Hospital at Ann Arbor, Mich., she applied to the defendant, a surgeon, for treatment. He found the cervix in a "very bad condition" and the vaginal canal raw and bleeding. He suspected cancer and removed the entire cervix without abdominal incision. The area was carefully dissected, cleaned and sutured. After a few days, when the dressing was removed, it was found that micturition was taking place involuntarily. A vesical fistula, or opening, appeared in the bladder wall. The defendant and other surgeons undertook, unsuccessfully, to sew up the bladder wall seven different times, three of which operations were performed after abdominal incisions. At the Mayo Clinic, after another unsuccessful attempt had been there made to close the fistula by sutures, the ureters were transplanted so as to connect the kidneys with the sigmoid. The plaintiff instituted suit against the defendant, alleging negligence in the operation he performed to remove the cervix. The trial court gave judgment for the plaintiff, and the defendant appealed to the Supreme Court of Michigan.

The defendant claimed that if he was at all at fault it was because of an honest mistake of judgment in a difficult situation which he was unable to foresee. He testified that the cervix was attached to the bladder wall by scar tissue as a result of the operation in Flint, in 1924, when the fundus was removed, and that the granular bleeding and appearance of the cervix made him suspect the beginning of cancer. In his judgment he had to cut deep so as to remove all diseased parts. It was necessary, testified the defendant, to dissect very close to the bladder wall and he exercised his judgment in determining through a sense of touch how far to cut when his knife encountered scar tissue, which he could not see. It was wholly a matter of judgment in distinguishing between the cervix and the bladder wall, the thickness of which varies in individuals. The defendant claimed, and there was no evidence to the contrary, that the wall of the bladder in this case was exceedingly thin and that it broke or a fistula developed on account of its weakness.

To establish the defendant's negligence, Dr. Louis Thexton of Chicago was permitted to testify concerning the practice of surgery in Grand Rapids and similar communities in western Michigan. The admission of this testimony constituted no error, said the Supreme Court of Michigan. The witness was a physician of experience and had performed somewhat similar operations, even though not the identical one in question. The knowledge that the witness obtained in the court room listening to the defendant's testimony in regard to the practice of surgery in Grand Rapids, together with his own experience, was sufficient to qualify him as an expert, even though he had never practiced in Grand Rapids. The court found it unnecessary to decide whether or not the verdict was against the great weight of evidence, for the trial court erred in failing to charge the jury that a surgeon is not responsible for an honest error of judgment when he adopts a certain course of action. This was not an operation, observed the Supreme Court, similar to a tonsillectomy or appendectomy, where a surgeon usually can see the entire area around the diseased parts. Here he had to exercise his honest judgment and his best ability. If he cut out the tissue in accordance with his best judgment based on surgical skill and experience, and acted in good faith and to the best of his ability, lack of success would be due to error of judgment

for which he would not be liable. It would not be negligence. The judgment of the trial court was reversed for the error committed and the defendant granted a new trial.

Hospitals: Liability of Charitable Institutions.—In Ohio, the doctrine of complete exemption of charitable institutions from liability has been repudiated. To a patient, a charitable hospital is liable for any failure on its part to exercise due care in the selection of servants, resulting in injury to the patient. To an invitee, such as special nurse employed by a patient, the hospital is liable for any injury due to the negligence of its agents or servants. Charitable institutions, said the Supreme Court of Ohio, are frequently conducted on a large scale, with all modern conveniences and appliances of a highly complicated nature, which enormously increase the risk of injury to operatives and strangers. Any doctrine of complete exemption would lead to carelessness, neglect and injury to both person and property. Such institutions should be encouraged, and those who are charitably inclined should be encouraged to support them; but this encouragement should not be carried to the point where injustice will be done to others. Innocent persons should not suffer through another's fault. The duty to exercise care to prevent injury to strangers will result in the exercise of greater care to patients. Any encouragement to negligence toward strangers will inevitably be reflected in the service rendered to patients.—*Sisters of Charity of Cincinnati v. Dutvelius (Ohio), 173 N. E. 737.*

Insurance, Accident: Trauma and Ruptured Blood Vessel in Head.—The American Liability Company issued an accident insurance policy to the plaintiff's husband, insuring him "against the effects of bodily injuries caused directly, solely, and independently of all other causes by external, violent, and accidental means." The plaintiff was named as beneficiary in the policy. The insured was found in an unconscious condition, fallen partially out of his automobile, with his head on the running board and one of his legs in the front seat of the car. He died four days thereafter, without having regained consciousness. An autopsy showed that a blood vessel had ruptured in his head and that this rupture was the immediate cause of death. No bruises were found on the body. The insurance company contended that the death was due entirely to a stroke of apoplexy and that the fall resulted from the stroke. The medical testimony was conflicting. The position of the insured when found, said the Supreme Court of Ohio, with his head bent under his body so that the weight of the entire body was almost resting on the side of his head and neck, might give rise to a reasonable inference of a violent fall which ruptured the blood vessel. On the other hand, it might give rise to a reasonable inference of a stroke resulting in a fall. Reasonable minds, said the court, might differ as to the conclusion to be drawn from the facts. The question was one of fact for the determination of the jury. The Supreme Court, therefore, affirmed a judgment of the court of common pleas for the plaintiff.—*Fenton v. American Liability Co. (Ohio), 174 N. E. 254.*

Workmen's Compensation Acts: Loss of an Eye.—Under the workmen's compensation act of Michigan, the loss of an eye means loss of the sight or vision of the eye. Loss of an eye, however, does not require total loss of sight. Where sight is destroyed to the extent that no vision useful in industry remains, the eye is lost even though some sight continues. But if any vision useful in industry remains, the eye is not lost. If, by aid of glasses, the vision may be increased to industrial usefulness, the eye is not lost, unless the glasses will prevent useful coordination of the eyes. Where one eye has been previously destroyed and compensation is sought for the loss of the remaining eye, it is held to be only partial disability arising from the accident and compensable specifically as for loss of an eye and not generally as for disability. Where injury to the remaining eye, causing less than blindness, incapacitates the employee from following his trade, it is compensable as for loss of an eye, even though considerable vision remains which would have been useful in industry were the other eye functioning. In the present case, the employee was struck in his left eye by a piece of metal, which lodged therein. A traumatic cataract developed from the injury. A surgical operation necessarily performed on the injured eye destroyed the lens entirely, resulting in the loss of direct vision to the extent of from 90 to 98 per cent. Because of the loss of the lens, too, the injured eye could not coordinate with the direct vision of the good eye. While the employee, after the operation, had no useful direct or central vision in the injured eye, he had peripheral or protective vision. The Supreme Court of Michigan affirmed an award of the department of labor and industry, compensating the employee for the loss of an eye.—*Powers v. Motor Wheel Corporation (Mich.), 234 N. W. 122.*

Libel: Report of Examining Physicians Appointed by Court.—The written report of physicians appointed by a court to make a physical examination of a party to an action in that court constitutes a privileged communication and cannot be made the basis for an action for damages for libel. In this case the plaintiff had obtained a judgment in the district court of Douglas County against his employer under the workmen's compensation act of Kansas. Subsequently the district court appointed the defendants, physicians and surgeons, to examine the plaintiff to determine whether his disability was still existing and whether it was permanent or partial. They were instructed to report the result of their examination to the court. The defendants reported, among other things, "that the cause of plaintiff's injury was a spinal lesion, apparently due to syphilis, and that same was a progressive lesion, and that he, the plaintiff, would probably never be better than he is now." Thereupon the plaintiff sued the defendants for libel. The Supreme Court of Kansas held that the report was privileged and that the plaintiff could not base an action for libel on it.—*Michens v. Davis (Kan.), 294 P. 896.*

Workmen's Compensation Acts: Liability of Physician for Malpractice.—The Oregon workmen's compensation act provides that a workman injured in the course of his employment by the negligence or fault of a third party has a choice of remedies. He may proceed under the statute to obtain an award of compensation or he may proceed against the third party at common law, but he cannot do both. Having pursued one remedy, he is barred from subsequently invoking the other; if he elects to take under the act, he must assign his cause of action against the third party to the commission, for the benefit of the accident fund. An aggravation of the primary injury resulting from the mistake, negligence or malpractice of a physician in treating the original injury is compensable under the act. Once having received and accepted compensation for the combined injuries, the employee cannot maintain an action against the physician for malpractice.—*McDonough v. National Hospital Ass'n (Ore.), 294 P. 351.*

Society Proceedings

COMING MEETINGS

American College of Surgeons, New York and Brooklyn, October 12-16. Dr. Franklin H. Martin, 40 East Erie St., Chicago, Director-General.

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Associated Anesthetists of the United States and Canada, New York, October 12-16. Dr. F. H. McMechan, 770 Westlake Road, Avon Lake, Ohio, Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Delaware, Medical Society of, Wilmington, October 13-14. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Interstate Postgraduate Medical Association of North America, Milwaukee, October 19-23. Dr. W. B. Peck, 1215 East Stephenson Street, Freeport, Ill., Managing Director.

Oregon State Medical Society, Eugene, October 22-24. Dr. F. D. Stricker, Oregon Building, Portland, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Western Branch of American Urological Association, San Francisco, Nov. 6-7. Dr. H. W. Howard, 193 Eleventh St., Portland, Ore., Sec'y.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

6: 723-854 (Aug.) 1931

Occurrence and Significance of Electrocardiograms Displaying Large Q-Waves in Lead III. F. A. Willius, Rochester, Minn.—p. 723.

Thyrotoxic Circulatory Symptoms with Low Metabolic Rate. R. S. Morris, Cincinnati.—p. 730.

Status of Heart in Myxedema. C. L. Tung, Peiping, China.—p. 734.

Mechanism of Death of Human Heart as Recorded in Electrocardiogram. K. B. Turner, New York.—p. 743.

Ventricular Fibrillation with Cardiac Recovery Caused by Carotid Sinus Pressure in Case of Auricular Fibrillation. C. Shookhoff, Brooklyn. —p. 758.

Unusual Variations of Roentgen Shadow of Elongated Thoracic Aorta. H. Rosler, Vienna, Austria, and P. D. White, Boston.—p. 768.

Subclavian Pulse in Aortic Valve Disease. H. Feil, Cleveland.—p. 778.

*Digitalis Dosage in Auricular Fibrillation: Influence of Activity of Cardiac Nerves on Size of Effective Dose. E. P. Boas, New York. —p. 788.

Effect of Digitalis on T-Wave of Electrocardiogram: Experimental Study in Human Beings. W. A. Brams and P. Gaberman, Chicago.—p. 804.

New Method for Clinical Determination of Human Capillary Tension. P. Strax and A. C. DeGraff, New York.—p. 807.

Digitalis Dosage in Auricular Fibrillation.—According to Boas, the ventricular rate in patients with auricular fibrillation is largely governed by the balanced activity of the vagus and accelerator nerves. With preponderant vagus activity the rate tends to be slow and stable, with preponderant accelerator activity it tends to be rapid and labile. Patients in whom accelerator influences predominate require much larger doses of digitalis to slow and stabilize the ventricular rate than do those in whom this excess of sympathetic influence is not manifest. This factor of nervous regulation is more potent than the weight of the patient in determining digitalis dosage. The conditions under which auricular fibrillation associated with exaggerated accelerator activity is encountered most frequently in the clinic are in childhood, in patients with neurocirculatory asthenia, with fever, with exophthalmic goiter, and with severe cardiac insufficiency. In these conditions, exceptionally large doses of digitalis must be given to produce and maintain adequate ventricular slowing in the presence of auricular fibrillation.

American Journal of Diseases of Children, Chicago

42: 263-502 (Aug.) 1931

*Effects of Deficiency in Vitamins in Infancy: Caries of the Teeth and Vitamins. C. E. Bloch, Copenhagen, Denmark.—p. 263.

Actinomycosis in Childhood. F. A. Figi and R. E. Cutts, Rochester, Minn.—p. 279.

*Acid-Base Status in Dehydration Accompanying Diarrhea in Infants: Effect of Treatment with Parenteral Fluids. L. A. Hoag and Eleanor Marples, New York.—p. 291.

Plasma Proteins and Edema: Relationship in Group of Children Presenting Nephrotic Syndrome. J. K. Calvin and A. H. Goldberg, Chicago.—p. 314.

*Streptococcus Hemolyticus in Nasopharynx of Children. H. F. Helmholz, Rochester, Minn.—p. 328.

Respiration of Premature Infants. L. A. Shaw and F. R. Hopkins, Boston.—p. 335.

Electrocardiographic Studies in Infectious Diseases: I. Normal Children. C. Shookhoff and L. M. Taran, Brooklyn.—p. 344.

Vitamin Deficiency.—Bloch states that, in man, deficiency in vitamin A has no specific injurious effect on the formation and calcification of the teeth. A disposition to dental caries, therefore, cannot be due to deficiency in vitamin A in infancy. Probably the same applies to a deficiency in vitamins B and C; in this respect one cannot apply the conclusions from experiments on guinea-pigs to man; guinea-pigs are hypersensitive to deficiency in vitamin C, and their incisors grow continuously. In man, dental anomalies are due chiefly to abnormalities of the mineral metabolism during the period when the teeth are calcifying. The author's study also shows that the death rate among children is considerable after their recovery from xerophthalmia; hardly two thirds of these children reach the age of 8 years. After this, their development goes on normally. Deficiency in vitamin A leaves no characteristic marks or defects, except in cases of advanced keratomalacia, which nearly always implies impairment of vision or blindness.

Acid-Base Status in Dehydration.—Hoag and Marples believe that the early administration of parenteral fluids to dehydrated, oliguric infants with diarrhea should be sufficiently vigorous to reestablish and maintain fully an adequate output of urine. The fulfilment of this condition by fluids including large amounts of sodium chloride in fourteen infants with varying degrees of dehydration resulted in clinical improvement and tended to correct the acid-base balance in all the subjects. In no instance did this therapy lead to an abnormal accumulation of chloride and a lowering of bicarbonate. The same treatment did not increase the relative loss of fixed base from the body. The actual excess of fixed base lost in diarrhea was fully compensated by a proportionate increase in the excretion of acid principally through the agencies of an augmented output of urine.

Streptococcus Hemolyticus.—Helmholz's study is based on cultures of nasopharyngeal swabbings taken once every two weeks for a period of almost two years in a series of eighteen children, aged from 2 to 14 years. Swabbings were taken in the homes of the children; great care was exercised to bend the wire applicator so as to avoid contact with any portion of the mouth and to touch only the nasopharynx. The swabs were taken to the laboratory immediately and rinsed in 2 cc. of physiologic solution of sodium chloride; two drops were put in a petri dish and incubated in 5 per cent blood agar. In the early part of the work inoculations were also made in deep tubes of dextrose-brain broth. These cultures were allowed to grow for twenty-four hours, and then subcultures were made on blood agar. As was to be expected, certain differences in the numbers of streptococci, staphylococci and gram-negative and gram-positive bacilli were found, but since it was impossible by this method to show any relation to the original number of organisms, it was discontinued and only the direct inoculations of blood agar plates were used. Of the total of 486 cultures, 216 (44 per cent) were positive for Streptococcus hemolyticus and 270 (56 per cent) were negative. In the ninety-eight infections of the upper respiratory tract occurring in the special group during this period, positive cultures occurred in forty-nine and negative cultures in forty-nine. It would appear that the mere presence of Streptococcus hemolyticus in cultures from the throat is of no significance. If, however, it represents a high percentage of the organisms present it may be of etiologic significance.

American Journal of Ophthalmology, St. Louis

14: 719-864 (Aug.) 1931

*Control of Myopia. E. Jackson, Denver.—p. 719.

*Some Interesting Experiences in Clinical Pharmacology of the Eye. D. I. Macht, Baltimore.—p. 726.

Filtration Operation of Mauksch for Chronic Glaucoma with Preliminary Report on Twenty-Four Operations. G. F. Suker, Chicago.—p. 732.

Divergence Paralysis. H. J. Howard, St. Louis.—p. 736.

Unusual Surgical Lesions Affecting Optic Nerves and Chiasm. J. R. Learmonth, W. I. Lillie and J. W. Kernohan, Rochester, Minn.—p. 738.

Fragment of Copper Wire in Vitreous: Case. P. G. Moore, Cleveland. —p. 750.

Diversified Thermophore Therapy. L. T. Post, St. Louis.—p. 752.

Epibulbar Nevocarcinoma with Almost Total Corneal Involvement. R. Castroviejo, Sr., Logrono, Spain, and R. Castroviejo, Jr., Chicago. —p. 757.

Iridencleisis for Glaucoma with Aphakia. O. Wolfe, Marshalltown, Iowa.—p. 769.

Clinical Value of Angioscotometry: System of Central Field Study. J. N. Evans, Brooklyn.—p. 772.

Value of Quadrant Field Defects in Localization of Temporal Lobe Tumors. D. Kravitz, Brooklyn.—p. 781.

Pulsating Exophthalmos. G. L. King, Jr., Alliance, Ohio.—p. 786.

Spontaneous Cyst of Iris: Case. E. A. Shumway, Philadelphia.—p. 792.

*Roentgen Therapy in Pituitary Tumors. G. E. Pfahler and E. W. Spackman, Philadelphia.—p. 796.

Stretching Opponent Muscle as Part of Routine Treatment of Convergent Squint Due to Errors of Refraction. M. E. Smukler, Philadelphia. —p. 808.

Control of Myopia.—According to Jackson, the development and increase of myopia depend on convergence of the eyes for near work, and avoidance of such convergence, by occupa-

tion and the use of concave lenses, is the foundation of its rational control. Axial myopia begins in childhood or at birth. There is nothing to indicate that senile myopia is due to increased length of the anteroposterior axis of the eyeball and every reason to believe that it is due to changes in the refraction of the crystalline lens. For the common, most important, form of axial myopia the program includes: 1. Avoidance of much use of the eyes for near seeing in early childhood, during the period of most rapid development and growth, up to 6 to 10 years. 2. Testing the vision and examining the eyes of children entering school, especially for ocular defects that will lead to excessive convergence. Such testing should include accurate measurement of ametropia. 3. Watching the children in school to secure an erect posture and keeping of the book away from the eyes Good print and good illumination both in school and in the home. 4. Sight-saving classes for children having poor vision, or suffering from any ocular condition that would be seriously aggravated by ordinary school work. Each of these children should be placed in such a class on the advice of an ophthalmologist, who should see the child every three months, so long as the sight-saving supervision was necessary. In such a class the child should spend a part of the day in the special room for sight-saving instruction and a part receiving oral instruction with seeing children of the same grade. 5. The constant wearing of accurate correcting glasses, especially of full strength concave glasses. 6. Regular daily, outdoor living and exercise for children, youths and young adults. 7. Close attention to the child's general health and nutrition, including care as to vitamins, and endocrine secretions. The author believes that such a program intelligently carried out would prevent most cases of myopia, would limit to low degree most of the cases that did arise, would prevent the degenerative changes that characterize the later stages of high myopia, and would prevent about 4 per cent of the blindness that now occurs in civilized countries.

Clinical Pharmacology of the Eye.—Macht recounts four interesting experiences in each of which a prescription properly prepared from chemicals conforming to required standards as proved by subsequent tests produced unexpected results in the eyes of the patient. A 2 per cent solution of pilocarpine with 0.5 per cent physostigmine produced mydriasis. A solution of homatropine hydrobromide producing extreme and prolonged mydriasis was found to be contaminated with atropine. Pharmacologic tests were necessary in this connection, being much more delicate than any chemical test. A pilocarpine solution of high purity was found irritating to the eyes of a patient because of unusual sensitization to small differences in hydrogen ion concentration. The cases are presented because of their interest as emphasizing the following practical points: the occurrence of abnormal physiologic effects after the use of certain important alkaloids in ophthalmologic practice, more particularly of physostigmine and pilocarpine; the great variations in potency and effectiveness of various specimens of homatropine on the market; the importance of applied pharmacology in connection with ophthalmologic therapeutics; the extreme delicacy of certain pharmacologic tests as compared with physical and chemical examination of powerful drugs, especially in regard to the detection of contaminations and variations in their therapeutic potency and the importance of constantly bearing in mind the idiosyncrasies and extreme sensitiveness on the part of patients to even small differences in the composition of prescriptions.

Roentgen Therapy in Pituitary Tumors.—Pfahler and Spackman state that pituitary tumors are more amenable to roentgen therapy than tumors elsewhere in the head. In many patients so treated since Gramegna reported the first case in 1909 there has been improvement in the characteristic symptoms. Eye conditions have been better subjectively and objectively. The visual field record has proved a valuable means of gaging improvement. Color fields have been first affected and first to recover. Polyuria, glycosuria and genital dystrophy have improved. Skeletal changes of acromegaly have not been affected except as to arrested progress. Solid adenomas have seemed more radiosensitive than the cystic forms. High voltage irradiation through several small portals of entry has been employed. The case histories of six patients so treated are reported in detail. Three of these were much helped by the treatment. One required operation and two had been under treatment only a short time with some improvement. On the basis of their own experiences and a review of the literature, the authors conclude that the solid adenomas usually respond to this treatment. The cystic adenomas do not. An endothelioma has been successfully treated. Some tumors that have not responded have been found to be carcinoma or sarcoma. The surgical statistics seem to show 20 per cent of permanent recovery, while 80 per cent are followed by recurrent symptoms. Heuer's statistics show that 20 per cent of the cases in which operation was performed were cystic adenomas. It seems that the cystic adenomas are responsive to surgery and the solid adenomas are responsive to irradiation. Since surgery involves great risks, and since irradiation shows no mortality and in skilful hands should not involve damage, it would seem advisable to treat with the high voltage roentgen rays first and keep the patient under observation for from six weeks to six months and operate if there is insufficient response to irradiation.

American Journal of Pathology, Boston

7: 327-422 (July) 1931

Experimental Hepatic Pigmentation and Cirrhosis: I. Does Copper Poisoning Produce Pigmentation and Cirrhosis of the Liver? E. M. Hall, Los Angeles, and E. M. MacKay, San Diego, Calif.—p. 327.
Id.: II. Effect of Heavy Carrot-Feeding on Rabbit's Liver. E. M. Hall, Los Angeles, and E. M. MacKay, San Diego, Calif.—p. 343.
Experimental Copper Poisoning. F. B. Mallory and Frederic Parker, Jr., Boston.—p. 351.
Microchemical Demonstration of Copper in Pigment Cirrhosis. F. B. Mallory and Frederic Parker, Jr., Boston.—p. 365.
Spontaneous and Experimental Infection of Pigeons with B. Aertrycke. J. R. Cash, Peiping, China, and C. A. Doan, Columbus, Ohio.—p. 373.
Systematic Study of Degeneration of Articular Cartilage in Bovine Joints. G. A. Bennett and W. Bauer, Boston.—p. 399.
Metastatic Carcinoma Simulating Hyperparathyroidism. R. L. Mason and S. Warren, Boston.—p. 415.

American Journal of Physical Therapy, Chicago

9: 121-148 (Aug.) 1931

Complete Obstruction of Esophagus Treated by Diathermy. H. Bordier, Lyons, France.—p. 125.
Tonsillectomy Made Safer in Adult Operative Risks: Safer Routine Method and Preparation. S. Morse, New York.—p. 127.
Treatment of Some Common Disfigurements by Physical Methods. G. B. Dowling, London, England.—p. 131.
Habitual Constipation and Its Treatment by Colonic Irrigation. W. K. Russell, London, England.—p. 136.
Nutrition and Its Relation to Calcium Metabolism. G. W. Mathews, Birmingham, Ala.—p. 139.
Physical Therapy Technic. A. T. Noe, Carpinteria, Calif.—p. 145.

American Journal of Surgery, New York

13: 215-430 (Aug.) 1931

*Diagnosis of Bone Tumors by Aspiration. B. L. Coley, G. S. Sharp and E. B. Ellis, New York.—p. 215.
The "Zipper Stitch" for Upper Abdominal Incisions. E. H. Pool, New York.—p. 225.
Acute Gastromesenteric Ileus. E. L. Kellogg, New York.—p. 227.
Treatment of Congenital Dislocation at Hip Joint. S. L. Hass, San Francisco.—p. 235.
Fracture of External Sesamoid Bone at First Metatarsophalangeal Joint; Case. M. H. Hobart, Chicago.—p. 242.
Buttonhole Rupture of Extensor Tendon of the Finger. H. Milch, New York.—p. 244.
Osteomyelitis of Gonococcus Origin in an Infant: Case. P. Palew, Brooklyn.—p. 246.
Displacement of Female Genital Organs and Their Repair. V. G. Hentz, New York.—p. 248.
Stricture of Female Urethra. M. W. King, Cleveland.—p. 251.
Strictures of Ureter. W. Mulvehill, Los Angeles.—p. 256.
Unified Plan for Keeping Records of Carcinoma of Uterine Cervix. F. E. Neef, New York.—p. 263.
Relationship Between Appendicitis and Right Ovarian Retention Cysts. M. Weinstein, Long Island City, N. Y.—p. 270.
Subperitoneal Cholecystectomy: Report of New Method. L. R. Whitaker, Boston.—p. 273.
Toxins of High Intestinal Obstruction. H. J. Jensen and W. M. Firor, Baltimore.—p. 281.
Malignant Adenomas of Colon. E. J. Kilfoy, Los Angeles.—p. 283.
Interduodenal Fistula. W. P. Kroger, Los Angeles.—p. 291.
Houston Valves: Their Rôle as Factor in Rectal Obstipation, Pelvic and Other Dysfunctions. A. J. Murrieta, Los Angeles.—p. 293.
Congenital Absence of Appendix Vermiformis. J. L. Spivack, Chicago.—p. 297.
Sigmoid Flexure in Constipation in Children. M. Tobias, Los Angeles.—p. 301.
Present Conception and Treatment of Shock. H. L. Wenger, Paterson, N. J., and Woodside, L. I.—p. 307.

Operative Treatment for Adrenal Cortical Obesity. H. Koster, M. Goldrieber, W. S. Collens and A. W. Victor, Brooklyn.—p. 311.
Case of Spontaneous Hemopneumothorax (with Some Simulation of Acute Surgical Abdominal Condition). A. T. Milhorat, New York.—p. 315.
New Abdominal Retractor. N. Taube, New York.—p. 318.
Slough After Injection Treatment of Varicose Veins. J. K. Narat, Chicago.—p. 319.

Bone Tumors.—Coley and his associates state that biopsy by the aspiration method is of value in establishing the diagnosis of bone tumors. It has advantages over the operative biopsy but will never completely displace it. In those cases in which the diagnosis cannot be made, even after several attempts, by the aspiration method, recourse can always be had to an operative biopsy. In those cases in which the pathologist is unable to differentiate the exact type of tumor present, it is of advantage to know whether the condition is neoplastic or inflammatory, malignant or benign. In only one case out of thirty-five was the pathologist unable to make a diagnosis and in only two cases out of sixteen which were subsequently checked by paraffin sections of tissue removed at operation or biopsy was the original aspiration diagnosis found to be in error. This method is described with due appreciation of the dangers that may be inherent in its general adoption. The possibilities of error, the necessity for selection of cases for its use, and the unusual demands placed on the pathologist in reaching conclusions from a study of such a small amount of tissue should be borne in mind. The latter consideration is the one that is most likely to limit its field of usefulness.

Annals of Surgery, Philadelphia

94: 161-320 (Aug.) 1931

*Diabetes in Relation to Surgery. E. W. Saunders, New York.—p. 161.
*Mortality in Goiter Operations: Analysis of Series of 1,755 Operations During Ten Year Period, 1920-1929, Inclusive. E. Goetsch, Brooklyn.—p. 167.
Historic Phases of Appendicitis. D. C. Collins, Rochester, Minn.—p. 179.
*Changing Picture of Appendicitis in Adults: One Thousand Cases. R. M. Watkins, Cleveland.—p. 197.
Appendicitis Chronic. R. D. McClure, Detroit.—p. 203.
Traumatic Industrial Cancer. I. I. Kaplan, New York.—p. 213.
Foreign Bodies in Stomach and Intestines. J. E. Cannaday, Charleston, W. Va.—p. 218.
Von Haberer's Technic for Radical Stomach Resection Following Previous Gastro-Enterostomy. R. R. Best, Omaha.—p. 233.
*Late Results of Simple Suture in Acute Perforation of Duodenal Ulcer. W. C. White and H. A. Patterson, New York.—p. 242.
Perforated Peptic Ulcer of Meckel's Diverticulum. D. B. Cobb, Goldsboro, N. C.—p. 256.
Similarity in Effect of Experimental High Intestinal Obstruction and High Complete Intestinal Fistula. J. J. Morton and H. E. Pearse, Jr., Rochester, N. Y.—p. 263.
Deep Lipomas of Hand. F. H. Straus, Chicago.—p. 269.
Foot Infections of Peridigital Origin: Routes of Spread and Methods of Treatment. M. Grodinsky, Omaha.—p. 274.

Diabetes in Relation to Surgery.—According to Saunders, the severity of infections in patients with diabetes is probably due to the enhanced growth of glycophilic organisms in tissue abnormally high in dextrose and with a p_H most favorable to toxin production. Ninety per cent of the diabetic patients requiring surgery are over 50 years of age and are suffering from complications much more severe than diabetes. Maintaining a low blood sugar with resultant low tissue sugar and change of tissue p_H helps considerably in controlling the existing infection when conservative surgery is attempted. Gastric or duodenal ulcer, gastritis or duodenitis, or acute cholecystitis may cause edema of the pancreas, peripancreatitis or subacute pancreatitis, which, by causing an exacerbation of the diabetes as well as by causing an actual acute surgical condition, might well explain the difficulty in the differential diagnosis between impending coma and an acute, surgical condition of the abdomen.

Mortality in Goiter Operations.—Goetsch analyzes the factors responsible for the fatal outcome in twenty-two instances of operations for goiter in a series of 1,755 operations carried out during the ten year period from Jan. 1, 1920, to Jan. 1, 1930. On the basis of his study he concludes that iodine, when administered as a preoperative measure only, is a valuable factor in reducing mortality following thyroid operations. Iodine, when administered other than as a preoperative measure, increases the danger of operation and renders the further intensive preoperative treatment relatively ineffectual. Furthermore, indiscriminate treatment with iodine may obscure the fundamental seriousness of an underlying hyperthyroidism and may thus fail to warn the surgeon of a possible postoperative hyperthyroid crisis. Singularly, iodine thus administered may also cause acute exacerbation of symptoms, a condition which is most difficult to control and which yields poorly to the well known measures of rest, sedatives, further intensive use of iodine and stage operations. The principal danger signals which should warn the surgeon are unusually acute hyperthyroidism or a prolonged period of hyperthyroidism, which has been present for years and which has reduced the vitality of the patient to a low level; extreme cardiac damage with fibrillation and decompensation; the history and signs of chronic valvular disease; unfavorable history or symptoms referable to the respiratory system, and such special factors as prolonged tracheal compression and recurrent nerve palsy. Incidental bad prognostic signs are extreme asthenia and loss of weight of from 20 to 50 pounds (9 to 23 Kg.) or more; vomiting and diarrhea, which indicate a severe intoxication with probable acidosis; unusually high basal metabolic rates, and unusual nervous and mental symptoms, such as great excitability, irrationalism and ideas of persecution, weakness and debility. Factors safeguarding the mortality are refusal to operate in the presence of even the mildest respiratory infection; proper preparation of the patient; adapting the type and extent of operation to the tolerance of the patient; a carefully conducted operation with the idea of brevity consistent with safety; a proper regard for a rapid pulse, which tends to increase steadily during the course of the operation; avoidance of trauma to the recurrent nerves, parathyroids and trachea, and complete control of hemorrhage, which is of prime importance. Additional factors of safety are a well conducted gas or local anesthesia and a detailed postoperative care.

Changing Picture of Appendicitis in Adults.—From a study of 1,000 case histories of appendicitis in adults, with reference to the major symptoms and signs, Watkins concludes that the present-day picture of the disease is not exactly the same as was the picture of several years ago; that, whereas abdominal pain, nausea, vomiting, muscular rigidity, abdominal tenderness and elevation of pulse, temperature and leukocyte count occur in about the same proportions as formerly, at present there is a lower incidence of constipation, diarrhea and abdominal distention in these patients and that there need be no hesitancy in the diagnosis of appendicitis in persons who present the cardinal symptoms and signs, even though the abdomen shows no distention and the state of intestinal elimination is normal.

Treatment of Perforated Duodenal Ulcer.—White and Patterson state that in the vast majority of cases of acute perforated gastroduodenal ulcer, including the patients who reach the surgeon soon after perforation, simple closure of the perforation, with or without drainage, is the treatment of choice. In early cases the abdomen should be closed without drainage. Patients so treated who survive the immediate hazard have approximately a 60 to 65 per cent chance of remaining permanently free of gastric complaints and a 10 to 15 per cent chance of requiring a gastro-enterostomy at a later date on account of pyloric obstruction. The remaining 25 per cent will be comfortable if careful as to diet and general daily routine. Some of them might best be subjected to partial gastrectomy as a curative measure. Secondary gastro-enterostomy, done on account of subsequent pyloric obstruction after simple closure, should produce uniformly good results. Primary gastro-enterostomy does not produce uniformly good results and should not be done as a routine. A few cases of acute perforated gastroduodenal ulcer are seen in which adequate closure cannot be effected without producing a pyloric occlusion, on account of a large perforation, unusually extensive surrounding induration, or both. These patients may justifiably be subjected to immediate gastro-enterostomy. Careful closure with use of omental reinforcement will reduce to a minimum the cases in which this is necessary. The late results of the Horsley type pyloroplasty in these cases are only fair. Partial gastrectomy in the presence of an acute perforation is not justified.

Archives of Dermatology & Syphilology, Chicago

24: 177-352 (Aug.) 1931

Dermatology in a Changing World. C. M. Smith, Boston.—p. 177.
Tryparsamide Therapy: Seventy-Six Patients with Neurosyphilis Treated with Tryparsamide. J. V. Lichtenstein, New York.—p. 182.
Hairless Mammals: Comparative Histologic Studies. Lorna Thigpen David, Storrs, Conn.—p. 196.
Blood in Psoriasis, with Especial Reference to Calcium, Phosphorus and Potassium. H. M. Hedge, Chicago.—p. 204.
Bacteriophage Therapy for Pyodermia: Twenty Cases. B. L. Kahn, Philadelphia.—p. 218.
Ultraviolet Irradiation and Autohemotherapy in Late Syphilis. E. Rajka and E. Radnai, Budapest, Hungary.—p. 228.
Syphilitic Parotitis. L. Chargin and T. Rosenthal, New York.—p. 236.
Unusual Coloration of Skin and Mucous Membrane in Aryans. E. V. Kistiakovsky, Kiev, Ukraine, U. S. S. R.—p. 247.
Circumscribed Myxedema of Skin. D. M. Pillsbury and J. H. Stokes, Philadelphia.—p. 255.
Keratoma Plantare Sulcatum (Castellani). C. G. Aars, Paramaribo, Dutch Guiana, South America.—p. 271.
Bilateral Herpes Zoster Following Acute Arsenic Poisoning. F. M. Jacob, Pittsburgh.—p. 280.
Fumigation as Aid in Control of Superficial Fungus Infections. S. Ayres, Jr.; N. P. Anderson and Esther M. Youngblood, Los Angeles.—p. 283.
Hodgkin's Disease: Surface Lymphogranulomatosis Confined to Oral and Penile Mucosa; Case. H. Sharlit, New York.—p. 288.

Archives of Neurology and Psychiatry, Chicago

26: 1-246 (July) 1931

Effects of Fragmentary and Complete Extirpation of Cerebellum in Cat: Cerebellar Localization. A. Ferraro and L. M. Davidoff, New York.—p. 1.
Optic Nystagmus: IV. Psychologic Conditions. H. C. Fox, Jr.; F. H. Couch and R. Dodge, New Haven, Conn.—p. 23.
*Cerebral Aneurysm and Cortical Herniation. J. J. Keegan and A. E. Bennett, Omaha.—p. 36.
*Narcolepsy. H. A. Cave, San Diego, Calif.—p. 50.
*Use of Sulphur for Production of Fever. R. P. Mackay, Chicago.—p. 102.
Encephalographic Studies in Cryptogenic Epilepsy. J. Nodkin, New York.—p. 115.
Induction of Sleep in Epileptic Persons. J. Rosett, New York.—p. 131.
Mass Responsiveness in Central Nervous System. L. E. Travis, Iowa City, and J. M. Dorsey, Ann Arbor, Mich.—p. 141.
Galvanic Skin-Reflex: Further Aspects in Psychopathologic Groups. H. C. Syz and Elaine F. Kinder, New York.—p. 146.
Monobromated Camphor: Standardized Convulsant. S. B. Wortis, Helen C. Coombs and F. H. Pike, New York.—p. 156.
Myelitis Occurring in Primary and in Secondary Stage of Syphilis. F. G. Lindemulder, Ann Arbor, Mich.—p. 167.

Aneurysm and Cortical Herniation.—Keegan and Bennett call attention to the fact that cerebral aneurysm should be suspected in cases of spontaneous subarachnoid hemorrhage, particularly in persons under 40 years of age. Anatomic peculiarities of the cerebral arteries and infectious emboli are significant in the etiology of cerebral aneurysm. Arteriosclerosis and syphilis rarely are the cause. Focal neurologic signs frequently indicate the location of the aneurysm after rupture, rarely before, unilateral oculomotor palsy being the commonest localizing sign. Ligation of the internal carotid artery on the side of the lesion is indicated if recurrent hemorrhage occurs. Cortical herniation into arachnoid granulations is of common occurrence in conditions with intracranial pressure. An unusual case of thrombosis of the motor cortex from herniation into large pacchionian bodies is reported.

Narcolepsy.—Cave summarizes the essential features of narcolepsy as follows: Narcolepsy is a condition characterized by the occurrence of sudden attacks of sleep and attacks of cataplexy. While the attacks of sleep present many characteristics that are foreign to normal sleep, there is sufficient similarity between them to justify the clinical application of the term sleeping attack and the assumption that they may have a common etiologic mechanism. All gradations between sleeping attacks without cataplexy to cataplexy without sleeping attacks may occur. Narcolepsy occurs in both sexes and is essentially a chronic condition; although it may incapacitate the person so afflicted, it apparently does not shorten his life. The sudden onset, brevity and rapidity of recovery of the two types of attack are sufficiently similar to suggest a common etiology. The occurrence of dreams during the diurnal attacks of sleep, together with the marked nocturnal restlessness and vivid dreaming, indicates that one is dealing with a mechanism that is disturbed nocturnally as well as diurnally. Narcolepsy may occur as a sequel of epidemic encephalitis. The association of obesity with narcolepsy points to a disturbance of the vegetative centers of the brain and of the endocrine system. Narcolepsy shows many clinical manifestations similar to other conditions, especially myoplegia and epilepsy. Pavlov's work on conditioned reflexes with the production of sleep as a result of internal inhibition is reviewed and the theoretical relation of this work to narcolepsy is discussed. The relation to narcolepsy of the sleep that may be produced by organic lesions of the floor of the third ventricle and the cerebral aqueduct is discussed. Attention is drawn to the marked loss of muscular tone and abolition of deep reflexes with the occurrence of an extensor plantar response in both cataplexy and normal sleep.

Sulphur in Production of Fever.—Mackay states that sulphur in olive oil, when injected into the muscles of the outer part of the thigh, produces a high fever, lasting from thirty-six to sixty hours, with variable elevation in the pulse rate, a vasomotor and a diaphoretic response less marked than in fever from typhoid vaccine, a marked polymorphonuclear leukocytosis and other less important physiologic changes. Local pain and tenderness at the site of injection, while present, are not particularly troublesome to the average patient with dementia paralytica. Experimental injections of suspensions of sulphur in oil and sulphur in acacia-saline solution into the rabbit's leg show a marked localized necrosis with an acute inflammatory reaction which is finally resolved. This work tends to show that the fever and other changes following the injection of sulphur intramuscularly result from the breaking down of muscle tissues into fragments which, when absorbed, cause a so-called protein reaction. Fever produced by injections of sulphur seems capable of effecting the same therapeutic results that any other form of fever can produce. It is chiefly of value in cases of dementia paralytica in which malaria is indicated and in many ways is superior to malaria, especially in the hands of the average physician.

Archives of Surgery, Chicago

23: 175-356 (Aug.) 1931

*Gallstones in Common Bile Duct. E. S. Judd and J. M. Marshall, Rochester, Minn.—p. 175.
*Aneurysm of Splenic Artery: Case and Review of Literature. W. E. Lower and J. I. Farrell, Cleveland.—p. 182.
*Normal Thyroid in Relation to Classification of Goiters. J. W. Hinton, New York.—p. 191.
*Hepatogenous Cholecystitis. E. Andrews and L. Hrdina, Chicago.—p. 203.
*Fibrocartilaginous Tumors of Bone. C. F. Geschickter, Baltimore.—p. 215.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; J. Verbrugge, Antwerp, Belgium, and A. A. Kutzmann, Los Angeles.—p. 329.

Gallstones in Bile Duct.—Judd and Marshall review a series of 1,608 consecutive cases in which stones of the common bile duct were removed by operation at the Mayo Clinic. This number does not include 160 cases of stones in the ampulla of Vater that they have reported elsewhere. The 1,768 patients who underwent removal of stones from the common bile duct, including the ampulla of Vater, represent 13.2 per cent of all those from whom gallstones were removed during the period corresponding to that during which the cases included in the authors' study were collected. There were 1,120 women and 488 men in this series, a ratio of 2.2 to 1. It was found that in the series of 1,608 patients the mortality rate was 6.7 per cent. Various causes were responsible for the number of deaths represented by this percentage, as follows: local or generalized peritonitis, 24 per cent; pneumonia, 24 per cent; hemorrhage in one form or another, 18 per cent; acute or chronic nephritis with renal insufficiency, 10 per cent, and pulmonary embolism, 7 per cent. The remainder of the deaths were due to cardiac failure, suppurative cholangeitis, diabetes mellitus, meningitis, ulcerative colitis and atrophy of the liver with hepatic insufficiency. The patients who survived the operation were, in the great majority of cases, completely relieved from their symptoms and have remained well. In the follow-up records it was found that 75 (4 per cent) have returned to the clinic because of recurring trouble and, in 55 of these, stones were again removed from the common bile duct.

Aneurysm of Splenic Artery.—Lower and Farrell believe that in persons exhibiting paroxysmal attacks of pain in the upper portion of the abdomen accompanied by gastro-intestinal hemorrhages and an epigastric tumor and in whom roentgeno-

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logic examination fails to disclose an organic lesion of the stomach, the possibility of a splenic aneurysm should be considered. In view of the pancreatic involvement in two cases of splenic aneurysm, an examination of the stools for undigested fat should be made in order to determine whether or not a pancreatic deficiency exists. A study of the enzymatic strength of the urine also would be useful, since in diseases of the pancreas an increased amylase content is not infrequently found in the urine. In all cases of abdominal tumor, stethoscopic examination should be made as a routine measure in order to determine the presence or absence of a bruit. In operating on an aneurysm of the abdominal cavity, accurate hemostasis is essential, as in all cases in which a tampon was used the patients died. If removal of the spleen is necessary for hemostasis, or ligation of the splenic artery and vein is essential, either may be done without fatal results.

Normal Thyroid.—Hinton remarks that when the normal picture is variable and the clinical and pathologic pictures of different types of goiter are interchangeable, it makes one wonder whether the past conception of the different types as clinical entities was not wrong, the types merely representing stages of a continuous disease, as maintained by Hertzler. If they do, he suggests that the treatment of goiters might be simplified and, instead of there being medical treatment for one type and surgical treatment for another, the patient should first be treated medically, if after careful physical examination and metabolic studies there is no evidence of an encapsulated tumor, hyperthyroidism or symptoms of pressure which constitute definite indications for surgical intervention.

Hepatogenous Cholecystitis.—Andrews and Hrdina describe experiments in which they noted that in biliary stasis the gallbladder of the dog promptly becomes infected with the characteristic anaerobic flora of the liver. Pathologic studies at various stages show that this infection occurs by direct extension from the liver. The authors believe that the fulminant type of human cholecystitis is often caused by the Welch bacillus from the liver.

Fibrocartilaginous Tumors of Bone.—Geschickter states that the gradations in a single type of tissue differentiation encountered in the osteochondromas (in which bone predominates), in the benign chondroma (in which cartilage predominates) and in the primary and secondary forms of chondromyxosarcoma (in which myxoma and fetal cartilage predominate) seem to imply a close relationship between the formation of tumors and the factors concerned in the growth and differentiation of tissue. Apparently all these various tumors have their origin in a single mother substance, an early precartilaginous connective tissue, and their varying degrees of malignancy are an expression of the rate and extent of differentiation in this tissue. When the rate of differentiation is slow and the extent of cartilage and bone formation is large, a benign exostosis results. When the rate of differentiation is rapid and the amount of adult cartilage and ossification is small, the neoplasms take the form of a chondromyxosarcoma. When an intermediate condition prevails, a benign chondroma, showing a definite tendency to malignant change in many instances, is produced. In all these tumors, however, the character of the histogenic cycle is the same, implying that the tissue of origin and not the etiologic agent is the determining factor in this regard. Whether or not the rate and extent of differentiation that govern the degree of malignancy is predetermined in the tissue at the time of the tumor's origin or whether it is dependent on the etiologic factor precipitating the growth is difficult to decide. Apparently, however, the etiologic factor is a secondary and variable influence. This is indicated by the fact that the benign exostoses may be accurately duplicated by gonorrheal spurs and arthritic osteophytes of known infectious origin, while similar benign growths such as those in multiple exostoses of the chondrodysplasia type show a definite hereditary tendency. That such widely divergent influences should find expression in a single form of neoplastic process speaks for the preexistence of a normal growth cycle, which may be thus set in motion and which determines the development and character of the neoplasm. Finally, the fundamental pattern of construction in skeletal tissues (the substitution of connective tissue by cartilage and of cartilage by bone), the order of which is adhered to in evolution, in embryology and in all the various forms of benign and malignant tumors in the fibrocartilaginous group, indicates an inherent and immutable sequence, which prevails in spite of the avowed lawlessness of tumor growth. The sequence or order of differentiation that is apparent in this group of tumors of the bone suggests that the formation of the tumor itself is part of the evolutionary process of pattern reproduction and an expression of the ever present tendency to variation manifested in the derivation of form and pattern throughout the organic world.

California and Western Medicine, San Francisco

35: 73-144 (Aug.) 1931

Hydrosalpinx: Its Visualization by Hysterosalpingography. A. Mathieu, Portland, Ore.—p. 73.
Incidental Head Surgery: Its Effects on Course of Pulmonary Tuberculosis. Eleanor C. Seymour, Los Angeles.—p. 78.
Leukopenia—Review: With Especial Reference to Agranulocytic Angina, Part I. O. H. P. Pepper, Philadelphia.—p. 82.
Deafness: A Vital Social Economic and Medical Problem. F. L. Rogers, Long Beach.—p. 86.
Monilia Infections of Skin. H. E. Miller, San Francisco.—p. 92.
Tubed Pedicle Flap in Reconstruction Surgery: Cases. G. W. Pierce and G. B. O'Connor, San Francisco.—p. 94.
Syphilis: Treatment of Wassermann-Fast and Cerebrospinal by Modern Methods. J. E. Potter, San Francisco.—p. 97.
Visual Requirements for Automobile Drivers. M. F. Weymann, Los Angeles.—p. 101.
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Femoral Condylitis: Cases. M. C. Mensor, San Francisco.—p. 121.
Comparative Religiotherapy. W. H. Manwaring, San Francisco.—p. 123.

Canadian Medical Association Journal, Montreal

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Differential Diagnosis in "Borderline" Cases of Hyperthyroidism. J. K. McGregor, Hamilton.—p. 152.
Heart Disease and Pregnancy. C. Young, Toronto.—p. 154.
Late Sequelae of Aseptic Abdominal Operation. N. J. Maclean, Winnipeg.—p. 159.
Advantages and Disadvantages of Nupercaine. A. Kennedy, Hamilton, Ontario.—p. 163.
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Intravenous Pyelography with Skiodan. D. W. MacKenzie and M. Ratner, Montreal.—p. 172.
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Phlegmonous Gastritis; Four Cases. J. E. Pritchard and J. W. McRoberts, Montreal.—p. 183.

Illinois Medical Journal, Chicago

59: 89-180 (Aug.) 1931

Acute Pancreatitis. P. E. Hopkins, Chicago.—p. 109.
Roentgenotherapy of Conditions Other Than Malignancy. I. S. Trostler, Chicago.—p. 113.
Fibrosarcoma of Orbit: Krönlein Operation; Case. O. D. Cunningham, Rockford.—p. 120.
Maggot Treatment of Osteomyelitis. J. Myers and L. M. Czaja, Chicago. —p. 124.
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Educational Committee and Its Relation to County Medical Society. J. McArthur, Chicago.—p. 136.
Factors in Tuberculosis Which Make It a Public Health Problem. D. D. Monroe, Edwardsville.—p. 142.
Seminal Vesicle Infection. A. McNally, Chicago.—p. 147.
Tuberculosis Under Government Control. J. Peters, Maywood.—p. 149.
Pathologic and Physiologic Death. E. Podolsky, Brooklyn.—p. 152.
Oculist or Optician, Which Shall It Be? G. F. Scheib, Champaign. —p. 155.
Primary Union in External Perineal Urethrotomy. C. O. Ritch, Chicago. —p. 160.
Aspects of Medical Quackery. H. R. Krasnow, Chicago.—p. 162.
Cancer of Uterine Cervix. R. T. Pettit, Ottawa.—p. 169.
Paralytic Ileus and Tetany of Toxic Origin Following Appendectomy: Case. E. H. Bukofzer, Chicago.—p. 173.

Iowa State Medical Association Journal, Des Moines

21: 425-476 (Aug.) 1931

A Medical Clinic. C. P. Howard, Montreal.—p. 425.
Mild and Brief Forms of Manic Depressive Psychosis and Their Treatment. G. E. Neuhaus, Omaha.—p. 438.
Use of Dick Methods in Control of Scarlet Fever Epidemic in Waterloo, Iowa. P. S. Rhoads, Chicago.—p. 443.
Anterior Poliomyelitis: Stressing Especially Preparalytic Diagnosis and Serum Therapy. H. J. Hartman, Waterloo.—p. 444.
Nonnhalation Anesthesia. J. D. Bisgard, Harlan.—p. 446.
Digitalis Intoxication. J. W. Thornton, Lansing.—p. 448.

Journal of Infectious Diseases, Chicago

49: 99-182 (Aug.) 1931

Tularemia in Norway. T. Thjøtta, Oslo, Norway.—p. 99.
Destruction of Micro-Organisms in Gastro-Intestinal Tract. B. E. Montgomery, A. K. Boor, L. Arnold and O. Bergeim, Chicago.—p. 104.
Brucella Abortus of Bovine, Porcine and Equine Origin. W. N. Plastridge, Storrs, Conn., and J. G. McAlpine, Caracas, Venezuela.—p. 127.
*Toxins of Streptococcus Epidemicus from Epidemic Septic Sore Throat. I. Pilot and I. Dreyer, Chicago.—p. 135.
*Influence of an Exclusive Meat Diet on Flora of Human Colon. J. C. Torrey and Elizabeth Montu, New York.—p. 141.
Diagnosis of Tuberculosis: Comparison of Results Obtained with Herrold Egg Yolk Agar Medium and with Inoculation of Guinea-Pigs. Carrie I. Woolsey, Chicago.—p. 177.

Toxins of Streptococcus Epidemicus.—According to Pilot and Dreyer, Streptococcus epidemicus of epidemic septic sore throat produces a toxin, as determined by intradermal test, 98 of 324 persons (30 per cent) giving positive reactions. Susceptible persons, as well as rabbits, may be immunized with the epidemicus toxin. Skin reactions to the toxins of Streptococcus epidemicus are widely divergent from those to the toxin of Streptococcus scarlatinae. Of 208 persons, 46 gave positive reactions to scarlet fever toxin, 56 to the epidemicus toxin and only 10 to both toxins. An attack of scarlet fever resulted in a loss of the skin reaction to the scarlet fever toxin but did not affect the skin reaction to the epidemicus toxin. Of 24 patients convalescent from scarlet fever who were negative to the Dick test, 8 (33 per cent) reacted to the epidemicus toxin. In persons giving positive reactions to both toxins, immunization with scarlet fever toxin resulted in the disappearance of the susceptibility to the scarlet fever toxin but did not affect the susceptibility to the epidemicus toxin; immunization with the epidemicus toxin resulted in loss of susceptibility to this toxin, while the result of the Dick test remained positive. Antiserums produced by means of the epidemicus toxin appear to be specific. They neutralize the epidemicus toxin but do not affect the scarlet fever toxin in persons giving positive reactions to skin tests with both toxins.

Influence of Meat Diet on Flora of Colon.—Torrey and Montu give a report of the effect of an exclusive meat diet on the colonic flora of three men, two of whom (A and S) continued on this diet for thirteen months and one (D) for ten days. The fat averaged from 1.5 to 1.75 times the protein by weight, and the only carbohydrate was that in the meat, amounting to from 5 to 10 Gm. a day. The principal observations were as follows: The fecal specimens during the period of the meat diet consisted of finely divided material with a mild acid, aromatic odor, generally inoffensive, and with a reaction varying from neutral to moderately acid (p_H 7 to 6). Direct microscopic counts of bacteria showed within from seven to ten days a decrease of about 50 per cent in the total number of bacteria. In subject A this lower count persisted throughout the entire period of the meat diet, whereas in S the total bacterial count remained for most of the time about 15 per cent below the level of the preliminary period of mixed diet. As shown by both microscopic and cultural examinations, the decrease in bacterial numbers was due to the suppression of types largely dependent on carbohydrate for their metabolism, such as Bacillus acidophilus and Bacillus bifidus, enterococci, streptococci and a group of micro-aerophil bacteria. In subject S the meat diet proved unfavorable to spirochetes. Long continuance of the meat diet reduced the count of viable Bacillus coli in the fecal specimens of A to one fourth or less of the number during the preliminary period of mixed diet, whereas in S the reduction was less marked. The percentage of hemolytic B. coli was greatly increased during the first few weeks. The sucrose-positive types were favored and also the stronger producers of indole. No increase in virulence was noted. Bacillus welchii was clearly favored by the meat diet for several months, for A the estimated count being from 10 to 10,000,000 times that of the preliminary period of mixed diet and for S from 100 to 10,000 times. After one year the number was reduced to the level of the preliminary period. Proteolytic anaerobes were not added to the colonic flora by the meat diet, and the native types were not favored. Aerobic proteolytic types, such as Proteus, did not appear in the flora of S and only late in the period of the meat diet in the flora of A. Micrococcus zymogenes appeared to be favored by the meat diet. There occurred, however, no definite and consistent increase in the proteolytic action of the whole flora on cooked meat medium and the observations, as a whole, indicated that an exclusive meat diet, even continued for a long period, is not necessarily conducive to the establishment of an obligate proteolytic flora in the human colon. On resumption of a normal mixed diet, a flora similar to that of the preliminary period of mixed diet, as regards bacterial types and numbers, recurred.

Journal of Preventive Medicine, Chicago

5: 227-301 (July) 1931

Concerning Distribution of Diphyllobothrium Latum in North America. T. B. Magath and H. E. Essex, Rochester, Minn.—p. 227.
Brucella Antibodies in Human Serum. J. W. Martin and J. T. Myers, Omaha.—p. 243.
Inheritance of Natural Immunity to Plasmodium Cathemerium in Two Species of Culex. C. G. Huff, Chicago.—p. 249.
Protective Measures of State of California Against Botulism. K. F. Meyer, San Francisco.—p. 261.
Significance of Agglutinins in Normal Persons. L. C. Havens and Catherine R. Mayfield, Montgomery, Ala.—p. 295.

Journal of Urology, Baltimore

26: 167-326 (Aug.) 1931

President's Address. R. H. Herbst, Chicago.—p. 167.
Aberrant Renal Vessels in Children. G. M. Fister and E. H. Smith, Ogden, Utah.—p. 175.
*Renal Tuberculosis. J. R. Caulk, St. Louis.—p. 189.
Hemangioma of Kidney: Two Cases and Brief Résumé of Literature. D. W. MacKenzie and A. B. Hawthorne, Montreal.—p. 205.
Diverticulum of Ureter: Three Cases. H. G. Bugbee, New York.—p. 215.
Neurosurgery in Treatment of Diseases of Urinary Bladder. III. Treatment of Certain Types of Vesical Paralysis. J. R. Learmonth, Rochester, Minn.—p. 229.
Pyeloscopy: Diagnostic Procedure Which Promises to Inaugurate New Era in Recognition and Satisfactory Treatment of Painful Abnormal Motility Syndromes of Upper Urinary Tract. W. P. Herbst, Minneapolis.—p. 233.
Excretion of Sodium Thiosulphate by Perfused Kidney. L. Elaut, Rochester, Minn.—p. 241.
Reflux Pelvic Lavage. S. F. Wilhelm, New York.—p. 247.
Rare Bladder Tumor (Fibromyoma) in Child. E. W. White, Chicago.—p. 253.
Vesical Diverticulum, Complicating Prostatic Obstruction: Unusual Case. H. A. Fowler, Washington, D. C.—p. 261.
Recurrent Benign Prostatic Obstruction. J. H. Cunningham, Boston.—p. 271.
Benign Prostatic Hypertrophy in Dwarf: Case. H. E. Pearse, Jr., New York.—p. 279.
Radical Operation for Cure of Cancer of Penis. H. H. Young, Baltimore.—p. 285.
Young's Radical Operation for Cure of Cancer of Penis: Thirty-Four Cases. L. G. Lewis, Baltimore.—p. 295.
Simple Device for Serial Pyelo-Ureterograms. T. D. Moore, Memphis, Tenn.—p. 317.
Sucker for Extracting Small Stones from Kidney Calices. W. E. Lower, Cleveland.—p. 325.

Renal Tuberculosis.—According to Caulk, renal tuberculosis is declining in frequency as a result of the improvement in the early diagnosis and treatment of pulmonary and general tuberculosis and the prevention of massive lesions. Early diagnosis in renal tuberculosis is paramount. The cystoscopic picture is most significant. In unilateral renal tuberculosis, nephrectomy should be performed promptly. Surgery in bilateral renal tuberculosis is indicated only in cases of emergency to relieve toxemia from pyonephrosis or to correct intractable vesical lesions. The immediate relief of symptoms in many of the cases after nephrectomy is due to the removal of a tuberculin reaction created by the products of bacteria, dead and alive, tuberculoproteins, fats and fatty acids. Often the more acute the lesion in the bladder, the more quickly the healing and relief of symptoms following the removal of the

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diseased kidney. The chance of healing in chronic renal surgical tuberculosis is remote and not comparable to the simple early experimental lesions. The mortality of nephrectomy is exceedingly low. The relief of bladder symptoms may be expected in at least 75 per cent of the cases of unilateral renal disease instead of an almost positive assignment to invalidism if the patients are left to medical care.

Kansas Medical Society Journal, Topeka

32: 253-288 (Aug.) 1931

Prognosis Versus Treatment in Pernicious Anemia. E. A. Miner, Independence.—p. 253.
Rational Radiology. G. W. Jones, Lawrence.—p. 255.
Operative Treatment of Ptosis. A. J. Baer, Kansas City, Mo.—p. 262.
Resolution Concerning New Plan of Benefits to Veterans of World War With Nonservice Connected Disabilities Together with Discussion of Resolution. H. H. Shoulders, Nashville, Tenn.—p. 266.
Phase of High Cost of Illness. W. Singleton, McCracken.—p. 270.
Ye Vacation of Dr. Pepys. J. A. Dillon, Larned.—p. 271.

Kentucky Medical Journal, Bowling Green

29: 389-450 (Aug.) 1931

Bone Infections from Standpoint of Roentgen Interpretation. S. E. Johnson, Louisville.—p. 392.
Early Diagnosis in Pulmonary Tuberculosis. H. C. Herrmann, Louisville.—p. 393.
Diagnosis of Peptic Ulcers. S. A. Overstreet, Louisville.—p. 394.
Mediastinal Tumors. D. Y. Keith, Louisville.—p. 396.
Roentgen-Ray Treatment of Blood Disease. I. T. Fugate, Louisville.—p. 399.
Diseases of Colon. J. H. Harrison, Owensboro.—p. 402.
Infant Feeding and Preschool Child. L. Palmer, Louisville.—p. 405.
Chorea: Fatal Case. J. J. Moren, Louisville.—p. 407.
Psychopathic Personalities. W. E. Gardner, Louisville.—p. 411.
Pernicious Anemia. B. H. Sigler, Owensboro.—p. 416.
Unusual Case of Heart Block. E. E. Butler and W. B. Troutman, Louisville.—p. 418.
Syphilis of Larynx. O. O. Miller, Louisville.—p. 421.
Modern Concepts in Nephritis. F. M. Stites, Louisville.—p. 422.
Preoperative and Postoperative Treatment. U. H. Smith, Louisville.—p. 429.
Operative Technic for Goiter. H. R. Wathen, Louisville.—p. 430.
Superfluous Hair and Roentgen Ray. W. J. Young, Louisville.—p. 435.
Lung Abscess. L. W. Frank, Louisville.—p. 438.
College of Physicians and Surgeons, Louisville, 1880, Then and Now. W. B. Doherty, Louisville.—p. 442.

Medical Journal and Record, New York

134: 157-208 (Aug.) 1931

Question of Depletion and Saturation of Vitamins A and D in Malnutrition, with Especial Reference to Effects of Cod Liver Oil Concentrate. B. Gordon and Isabel Roberts, Philadelphia.—p. 157.
Rôle of Roentgen Diagnosis in Gastro-Intestinal Diseases. L. L. Perkel, Jersey City, N. J.—p. 159.
Roentgen Rays That Mislead. M. B. Lenley, New York.—p. 162.
Prevention of Myopia. E. S. Thomson, New York.—p. 163.
Some Phases of Epilepsy. W. T. Shanahan, Sonyea.—p. 166.
Present Status of Birth Control Movement in England and United States: Recent Developments. S. A. Knopf, New York.—p. 171.

Military Surgeon, Washington, D. C.

69: 129-258 (Aug.) 1931

First Air Division (Provisional) Maneuvers. C. L. Beaven.—p. 139.
Medical Activities in Managua Earthquake. W. B. Hetfield.—p. 143.
Dietetic Department, Walter Reed General Hospital. A. L. Parsons and G. A. Ekwen.—p. 149.
Passive Immunity to Measles Conferred by Whole Blood Intramuscular Injections. M. A. Farlow.—p. 155.
Fort Robinson, Nebraska—Extracts from Its Medical History. M. B. Dunning.—p. 157.
Experiment in Use of Individual Tubes in Prophylaxis of Venereal Disease. B. F. Duckwall and W. C. Cox.—p. 172.
Experimental Transplantation of Ureters in Bowel by a Two-Stage Operation. C. Ferguson.—p. 181.

Nebraska State Medical Journal, Lincoln

16: 297-336 (Aug.) 1931

The Country Doctor Looks Around. A. A. Conrad, Crete.—p. 297.
Progress of Surgery. H. H. Davis, Omaha.—p. 303.
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Some of the More Important Points in Early Diagnosis of Brain Tumors and Their Present Day Treatment. E. Sachs, St. Louis.—p. 309.
Primary Carcinoma of Liver: Four Cases. W. Barry and B. C. Russum, Omaha.—p. 312.
Sketch of Life and Work of Leonardo Da Vinci. C. M. Wilhelmj, Omaha.—p. 315.
Present Day Sinus Trouble Complex. C. T. Uren, Omaha.—p. 318.
Grading Doctors. A. E. Reeves, Farnam.—p. 320.
Myoma of Stomach: Unusual Case. M. Emmert, Omaha.—p. 323.

New England Journal of Medicine, Boston

205: 367-420 (Aug. 20) 1931

Physical Therapy in Retrospect. W. D. McFee, Boston.—p. 367.
Physical Treatment of Mental Illness. J. A. Holland, Trenton, N. J., and Philadelphia.—p. 371.
Hyperthermia in Dementia Paralytica: I. Blood Chemistry Studies. C. T. Perkins, Worcester, Mass.—p. 374.
Value of Hysterosalpingography: One Thousand Cases. S. A. Robins and A. A. Shapira, Boston.—p. 380.
Roentgen Examination for Peptic Ulcer, with Especial Reference to Those Cases Presenting Unusual Difficulties in Diagnosis. R. Dresser, Worcester, Mass.—p. 395.
Agranulocytosis: Four Cases. B. H. Ragle, F. D. Adams and J. H. Fay, Boston.—p. 400.
Reflex Tenderness: Sign of Gallbladder Disease. G. Levene, Norwood, Mass.—p. 403.

Philippine Islands M. Assn. Journal, Manila

11: 261-296 (July) 1931

Public Health in Europe. P. I. de Jesus, Manila.—p. 261.
Relation Between the State of Nutrition of Mother and the Birth Rate, and Rate of Living Children and Weight at Birth. H. A. Sison and J. Calang, Manila.—p. 272.
Professional Relationship Between Nurse and Physician. P. Anzures, Manila.—p. 276.

Philippine Journal of Science, Manila

45: 483-600 (Aug.) 1931

Partial Revision of Ganoderma Applanatum Group, with Particular Reference to Its Oriental Variants. C. J. Humphrey and S. Leus, Manila.—p. 483.

Public Health Reports, Washington, D. C.

46: 1869-1908 (Aug. 7) 1931

Typhus Fever: Rat Flea, Xenopsylla Cheopis, in Experimental Transmission. R. E. Dyer, E. T. Ceder, A. Rumreich and L. F. Badger.—p. 1869.
Coordination in Sanitary Control of Bottled Mineral Waters. W. S. Frisbie.—p. 1873.

46: 1909-1980 (Aug. 14) 1931

Age and Sex Incidence of Influenza and Pneumonia Morbidity and Mortality in Epidemic of 1928-1929 with Comparative Data for Epidemic of 1918-1919. S. D. Collins.—p. 1909.
Dermatitis Venenata Due to Contact with Brazilian Walnut Wood. L. Schwartz.—p. 1938.
Important Source of Original Rat Infestation on Newly Constructed Vessels. B. E. Holsendorf.—p. 1943.

Western J. of Surg., Obst. & Gynec., Portland, Ore.

39: 569-648 (Aug.) 1931

*Air Embolism in Thyroidectomy: Experimental Study. M. Nordland, B. E. Hall and K. I. St. Cyr, Minneapolis.—p. 581.
Preoperative Preparation of Goiter Patients. V. E. Chesky, Halstead, Kansas.—p. 592.
Postoperative Care of Goiter. J. M. Hayes, Minneapolis.—p. 597.
Cause of Exophthalmos. B. T. King, Seattle.—p. 602.
Primary Treatment of Nerve Wounds. H. G. Willard, Tacoma, Wash.—p. 610.
Clinical and Pathologic Study of Carcinomatous Gastric Ulcer, with Particular Reference to Grading of Malignancy. W. H. Bueermann, Portland.—p. 614.

Air Embolism in Thyroidectomy.—Nordland and his associates describe experiments on dogs, from which they conclude that air embolism should be considered as a possible cause of sudden death during thyroidectomy. The total quantity of air necessary to cause death is not constant, the fatal dose varying with the same and different species. The probable cause of death is an arrest of the pulmonary circulation and consequently of the systemic circulation, resulting from futile contractions of the right ventricle in a medium of frothy blood. The patient with toxic goiter is much more susceptible to fatal air embolism than the patient with a nontoxic goiter.

Wisconsin Medical Journal, Madison

30: 516-605 (July) 1931

Summary of Gastro-Intestinal Structures with Reference to Production and Regulation of Gastroduodenal Functions. E. J. Carey, Milwaukee.—p. 530.
Functions of Gastro-Intestinal Tract with Especial Reference to Ulcer-Producing Gastroduodenal Malfunctions. W. J. Meek, Madison.—p. 534.
The Pathology of Gastroduodenal Ulcer. C. H. Bunting, Madison.—p. 537.
Experimental Aspects of Gastroduodenal Ulcer. F. Raine, Milwaukee.—p. 540.
Gastroduodenal Ulcer: Surgical Aspects. J. Yates, Milwaukee.—p. 547.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Dermatology & Syphilis, London

43: 385-476 (Aug.-Sept.) 1931

Effects on Skin of Concentrated Ultraviolet Light and Its Use in Dermatologic Therapy. S. Lomholt.—p. 385.
Acne Agminata (Crocker). W. J. Oliver.—p. 400.
Some Unusual Forms of Recklinghausen's Disease. L. Savatard.—p. 414.

British Journal of Ophthalmology, London

15: 433-480 (Aug.) 1931

Discussion on Etiology of Trachoma with Especial Reference to Bacterium Granulosis (Noguchi). R. P. Wilson.—p. 433.
*Ocular Complications of Acne Rosacea. J. H. Doggart.—p. 446.
Observations on Treatment of Orbital Osteoma with Report of Case. N. Patterson and H. Cairns.—p. 458.
Embolism of Arteria Centralis Retinae. N. F. Bey.—p. 467.

15: 481-544 (Sept.) 1931

Results of Ophthalmic Operations. T. H. Butler.—p. 481.
Royal Westminster Ophthalmic Hospital and Its Staff in the Past. A. Caddy.—p. 498.
Ophthalmoscopic Evidence of Death. N. Pines.—p. 512.
Rapid Interstitial Degeneration of Cornea Following Choroidal Hemorrhage. E. A. Seale.—p. 514.
Blindness of Tobit. E. Thomson and R. R. James.—p. 516.
Iodine in Treatment of Trachoma. J. Neumann.—p. 518.

Ocular Complications of Acne Rosacea.—Doggart states that by reason of its capacity to produce keratitis in a small proportion of cases, acne rosacea may bring about serious disability. Keratitis in this disease causes repeated attacks of pain in the eyes, and endangers clear vision. It is exceedingly difficult to cure and may be almost impossible to relieve. If one system of treatment fails, others should be tried in order to shorten the attacks and to increase the intervals of quiescence. A permanent cure is not claimed in any single instance. Treatment by ultraviolet or roentgen rays offers a chance of temporary improvement when simple remedies have produced no response.

British Journal of Radiology, London

4: 365-420 (Aug.) 1931

Secondary Radiation Therapy: Part I. Physical Aspects. W. V. Mayneord.—p. 369.
Fixation of Iliac Colon by Acquired Bands: Radiologic Demonstration. A. C. Jordan.—p. 387.
Limitations of Single-Valve Unit. W. E. Schall.—p. 391.
Gaiffe Milliampere-Second Relay. A. C. Gunstone and E. J. W. Watkinson.—p. 395.

British Medical Journal, London

2: 283-330 (Aug. 15) 1931

Some Recent Policies Regarding Particular Diseases. G. Buchanan.—p. 283.
*Late Results of Operative Treatment in Toxic Goiter. C. S. D. Don.—p. 287.
Treatment of Carcinoma of Esophagus. E. M. Woodman.—p. 290.
Postmortems: Their Object and Performance. E. F. Hoare.—p. 292.
Public Health Problems Attendant on Air Travel. A. Massey.—p. 296.
Prominent Heel. P. B. Roth.—p. 298.

Late Results of Operation for Toxic Goiter.—Don gives the details of forty-two cases of toxic goiter in which operation was performed and describes the method of examination. From his observations he concludes that the disappearance of exophthalmos does not of necessity follow the complete relief of hyperthyroidism, yet a diminution of toxicity is usually followed by an improvement in this sign, which may disappear completely in patients whom one regards as cured. Exophthalmos is likely to persist in those cases in which the metabolism has not dropped to within normal limits. Nervousness is invariably improved by a successful operation, but the patient may continue to be nervous in spite of a normal metabolic rate. The majority of patients gain weight after operation, yet there are occasional cases in which an otherwise successful result is not accompanied by any increase and this is seen even in a patient in whom there was a considerable loss of weight before operation. Failure to gain weight is occasionally associated with glycosuria, which is sometimes seen in exophthalmic goiter, and may become more severe after operation. Relief of hyperthyroidism and a lowering of the metabolic rate to normal limits usually follow a subtotal thyroidectomy: there are cases in which the metabolic rate remains above normal limits in which no increase of thyroid tissue can be made out and in which no focus of sepsis can be discovered in any part of the body; worry and too little leisure are probably the factors that prevent a good result in these cases. The removal of one lobe is followed by improvement, and three of the author's patients were types with exophthalmic goiter in whom relief of hyperthyroidism has followed this operation. A satisfactory result has also followed ligation in two cases, and it will be readily understood that the improvement which ultimately followed was the cause of the complete operation not being undertaken at a later date. Ligation alone is not regarded as a curative measure, and while it is of interest to note that a normal metabolic rate can follow this simple procedure, it is probable that the operation had little effect on the ultimate outcome. If the clinical condition of the forty-two patients, their ability to do work, and the rhythm and rate of the pulse are considered in conjunction with observations on the basal metabolic rate, the result of operative treatment has been good in twenty-eight cases and improvement in nine, while in five the operation has been of little value.

Indian Journal Medical Research, Calcutta

19: 1-352 (July) 1931

Researches on "Stone": IX. Studies in Calcium and Phosphorus Metabolism. S. Ranganathan.—p. 1.
Id.: X. Cattle Stone. S. Ranganathan.—p. 49.
Id.: XI. Effect of Milk in Preventing Formation of Calcium Stones in Urinary Tract of Albino Rats. R. McCarrison.—p. 51.
Id. XII. Relative Importance of Vitamin A, Radiostoleum, Cod Liver Oil and Sodium Phosphate in Preventing Formation of Calcium Stones in Urinary Tract of Albino Rats. R. McCarrison and S. Ranganathan.—p. 55.
Experimental Production of Gastric Ulcer in Albino Rats. R. McCarrison.—p. 61.
Urinary Excretion of Iodine by Goitrous and Nongoitrous Persons in Gilgit: II. R. McCarrison and G. Sankaran.—p. 67.
Iodine Content of Thyroid Gland in Guinea-Pigs Fed on Scorbutic Diet. G. Sankaran.—p. 71.
Basal Metabolism of South Indian Women. E. D. Mason and F. G. Benedict.—p. 75.
Phlebotomus Stantoni Newstead, 1914, and Some Other Siamese Sandflies. J. A. Sinton.—p. 99.
Notes on Some Indian Species of Genus Phlebotomus: XXIX. Phlebotomus Arboris N. Sp. J. A. Sinton.—p. 107.
Effect of Intravenous Injections of Quinine on Electrocardiogram in Man. T. A. Hughes.—p. 113.
Effect of Emetine on Blood Sugar. N. K. Basu.—p. 121.
Preliminary Observations on Influence of Different Concentrations of Hydrogen Ions and Temperatures of Water on Mosquito Larvae (Anopheles Subpictus). H. S. Pruthi.—p. 131.
Behavior of Bacteriophage Present in Raw Water in Process of Sand Filtration. A. D. Stewart and S. C. Ghosal.—p. 137.
Preliminary Observations on an Acid-Fast Organism Isolated from Human Leprous Lesions. J. M. Henderson.—p. 143.
Potency of Time-Expired Antivenomous Serum Stocked Under Ordinary Conditions of Storage at Central Research Institute, Kasauli. G. C. Maitra and M. L. Ahuja.—p. 155.
Note on Probable Causes of Unpleasant Reactions Following Prophylactic Cholera Inoculation, with Especial Reference to Certain Avoidable Factors. G. C. Maitra and M. L. Ahuja.—p. 159.
Absence of Malaria in Salt Water Lake Basin. M. O. T. Iyengar.—p. 163.
Note on Two Intestinal Protozoa of Indian Mongoose. R. Knowles and B. M. Das Gupta.—p. 175.
Indian Ephedras: Their Chemistry and Pharmacology. R. N. Chopra, S. Krishna and T. P. Ghose.—p. 177.
Notes on Some Indian Mosquitoes of Subgenus Stegomyia, with Descriptions of New Species. P. J. Barraud.—p. 221.
Basal Metabolism of Prisoners of District Jail, Lucknow (United Provinces of Agra and Oudh). N. D. Banerji.—p. 229.
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Irish Journal of Medical Science, Dublin

67: 289-336 (July) 1931

Preliminary Note on Intravenous Treatment of Pneumonia. R. V. Murphy.—p. 289.
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Notes on Case of Spontaneous Rupture of Spleen. S. Pringle.—p. 329.

Journal of Laryngology and Otology, Edinburgh

46: 521-588 (Aug.) 1931

Congenital Abnormalities at or Near Upper End of Esophagus. A. B. Kelly.—p. 521.
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Injuries of Ear Arising from Fractures of Skull. E. D. D. Davis.—p. 536.

Journal of Neurol. & Psychopathology, London

12: 1-96 (July) 1931

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Hyperventilation Experiments During CO_2 and O_2 Inhalation in Patients with Convulsions. M. Fog and M. Schmidt.—p. 14.
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Study of Phobias. H. A. Paskind.—p. 40.

Journal of Physiology, London

72: 377-466 (Aug. 14) 1931

Sensory Discharges in Single Cutaneous Nerve Fibers. E. D. Adrian, M. Cattell and H. Hoagland.—p. 377.
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Journal of Tropical Medicine & Hygiene, London

34: 261-284 (Aug. 15) 1931

Undulant Fever Due to Bruella Abortus in Kenya Colony. N. P. Jewell.—p. 261.
Intensive Antimonial Treatment of Kala-Azar. P. Brahmachari and U. Brahmachari.—p. 263.
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Lancet, London

2: 333-384 (Aug. 15) 1931

*On Vaccine Therapy and Immunization in Vitro. A. Wright.—p. 333.
Pulmonary Artery Impression on Esophagus. J. Parkinson and D. E. Bedford.—p. 337.
*On Prevention of Malaria with Plasmoquine. S. P. James, W. D. Nicol and P. G. Shute.—p. 341.
*Tourniquet Paralysis: Plea for Extended Use of Pneumatic Tourniquet. N. L. Eckhoff.—p. 343.
Anesthesia in Second Stage of Labor in Primiparas. Jane King and Joyce Morgan.—p. 346.
Unusual Case of Hodgkin's Disease. J. I. Sapwell.—p. 347.

Vaccine Therapy and Immunization in Vitro.—Wright calls attention to the fact that patients suffering from lupus and generally from strictly localized forms of tuberculosis unaccompanied by constitutional disturbance have a low opsonic index to tubercle bacilli. The phenomenon is clearly not one of the same order as the negative phase, for negative phases supervene not on minimal autoinoculations, such as can here come in question, but only on large inoculations or autoinoculations. Further, a negative phase is practically always followed by the response in the form of a positive phase, and the indexes of these patients remain, as can be inferred from the fact that their tuberculo-opsonic indexes are uniformly low, chronically below standard. This point finds its parallel in the results obtained by the inoculation of the blood with minimal quanta of vaccine. When minimal quanta of living bacteria are implanted into the blood on the one hand and serum on the other, more develop into colonies in the blood than in the serum. The same thing may be seen when the serum of bloods which have been treated with minimal quanta of vaccines are tested for bactericidal power by implantation with staphylococcus. Such serums are often found to furnish a better culture medium for staphylococcus than the control serum. And, again, the addition of minimal quanta of vaccine to a phagocytic mixture often lowers the phagocytic index.

Prevention of Malaria with Plasmochin.—James and his associates describe an experiment which proves that plasmochin effectively prevents mosquito-borne malarial infection among a group of healthy individuals who take the prophylactic doses. Quinine lacks this remarkable property. The successful result in the authors' test was obtained by taking 0.02 Gm. on the day before infection and the same dose thrice daily on the day of infection and on the five following days; but somewhat smaller doses taken over a shorter period are equally effective. The next step should be to ascertain whether the preparation is effective when taken only once daily, and, if so, what may be the smallest daily dose which will prevent malarial infection in persons who are bitten by infected mosquitoes twice or thrice weekly over a prolonged period.

Tourniquet Paralysis.—Tourniquet paralysis is a sufficiently common complication of operations on the arm and hand to warrant the careful consideration of every surgeon who is in the habit of operating on the limbs, yet Eckhoff was unable to find any reference to the condition in the English literature, and only two short articles in the French. There are several possible factors in the causation of this calamity. It is difficult, at the outset, to assess the importance of the mere anemia induced by the tourniquet on the nerves themselves. From knowledge of the sensitiveness of certain nervous structures to anemia, paralysis of the nerves might be expected to follow at once on the interruption of their blood supply. Yet it is remarkable how little all the tissues of the limb—the nerves included —are affected in the vast proportion of cases in which a tourniquet is used. As far as can be determined, the function of these structures is usually unimpaired by interference with their blood supply for relatively long periods. It seems almost certain that the paralysis following the use of a tourniquet is due to the effect of the direct pressure of the encircling band on the nerves, pressing them against the bone, and not to any extent to the effect of a simple anemia. This is borne out by the peculiar sensitiveness of the radial nerve, fitting in so well with anatomic considerations and so difficult to explain by any vascular process. No effort is too great in the prevention of this condition. It is not the purpose of the author to decry the tourniquet but rather to stimulate the use of the pneumatic tourniquet. The main thing at fault with the tourniquet in common use is the complete inability to control the pressure applied. This is true also of the pneumatic tourniquets on the market, but there is now a simple instrument to be found everywhere in the aneroid sphygmomanometer of the Tycos pattern. This is applied to the arm, with the dial and rubber bulb pointing proximally. It is well to include the mass of the deltoid muscle or, if the operation is on the hand, to place the armlet around the mass of the forearm muscles. It can be used equally well in the leg. A pressure of some 20 mm. above arterial pressure ought to be sufficient, but the author has generally used a pressure ranging between 160 mm. (for young people) and 200 mm. (for old people). The tourniquet may be used in conjunction with an expression bandage (Esmarch's or Martin's) applied from the distal extremity of the limb, or alone, after simple elevation of the limb for a minute or two. In any case it is placed in position before the commencement of the anesthetic (thus saving the anesthetic time) and inflated immediately before the operation is to begin. In an emergency it may be controlled by the anesthetist, though obviously, as a rule, its care is best left to some other assistant. In operations for sepsis in the hand it is invaluable, and, as its application is so simple, no operation of this sort should ever be undertaken without its aid. In these instances a preliminary expression bandage is obviously contraindicated, and if the tourniquet is inflated sharply, with the arm elevated, there is a trivial venous oozing on the first incision, which rapidly gives place to a bloodless field. There is occasionally a slight leak in the instrument—in the valve at the air inlet near the rubber bulb. A light intestinal clamp or a pair of sponge holding forceps applied to the afferent tube, leaving the dial in free communication with the

rubber armlet, is usually sufficient to check this. It is well, however, to request an assistant to watch the dial occasionally and inflate from time to time if necessary. A linen bandage applied over the armpits helps to keep this firm. During five years the author has used this tourniquet for every operation on the forearm and hand, without regret and without any complication. It would be impossible to estimate accurately the number of operations of this sort he performed in the period, but it must total many hundreds. It would include many operations for sepsis in the hand (always a deliberate dissection), and many for suture of tendons and nerves, and multiple lacerations of the hand and fingers (often tedious and slow). A tourniquet paralysis should never occur if only a moderate and controlled encircling pressure of this sort is used.

Medical Journal of Australia, Sydney

2: 153-186 (Aug. 8) 1931

Tuberculosis in Australia. J. H. L. Cumpston.—p. 153.
Pulmonary Tuberculosis and Notification. F. S. Hone.—p. 163.
Home and Institutional Treatment of Pulmonary Tuberculosis from Point of View of Public Health. S. Gillies.—p. 166.
Some Observations on Contact Work in Tuberculosis Bureau. J. B. Ferguson and H. M. James.—p. 169.

2: 187-220 (Aug. 15) 1931

Medicolegal Difficulties Following Bone and Joint Injuries: Legal Aspect. R. M. MacKay.—p. 187.
Radiography and Medicolegal Cases. J. G. Edwards.—p. 194.
Estimation of Lead in Egg of Domestic Hen. W. B. S. Bishop.—p. 197.

Practitioner, London

127: 225-320 (Aug.) 1931

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Speech Disturbances in Cases of Parkinsonism. E. Stolkind.—p. 285.
Fat Children. W. F. Christie.—p. 291
Enterospasm, Spastic Colon, or Tonic Hardening of Colon. T. S. Wilson.—p. 298.
Some Clinical Observations on Cancer. W. B. Cosens.—p. 308.

South Africa M. Assn. Journal, Cape Town

5: 441-476 (July 25) 1931

Malaria in the Union: Report on Investigation into Malaria in Union of South Africa, 1930-1931. H. H. Swellengrebel.—p. 443.
Observations, Dermatologic and Other, in New York City. Eva Binion. —p. 457.
Urology in Berlin. E. B. Fuller.—p. 459.
Trigeminal Neuralgia: New Operation with Report of Case. A. Radford.—p. 461.

Tubercle, London

12: 529-576 (Sept.) 1931

Stereoscopic and Postural Radiology of Chest. P. W. Edwards.—p. 529.
Radiostereoscopy of Chest. J. B. Christopherson.—p. 532.
Stereoscopic and Postural Radiology of Chest. L. B. Stott.—p. 539.

China Medical Journal, Shanghai

45: 703-814 (Aug.) 1931

". . ., But Unfortunately the Patient Died": A Study of One Hundred and Twenty-Six Postoperative Deaths at University Hospital, Tsinan, Shantung. P. B. Price.—p. 703.
Outpatient Work on One of Pescadore Islands. R. H. Mumford.—p. 737.
Thallium Acetate as Depilatory. L. F. Heimburger and C. C. Yiu.—p. 742.
Dick Test on Chinese Students in Shanghai. D. G. Lai.—p. 749.
Diagnosis of Obscure Fevers in South China. W. B. McClure.—p. 758.

Japanese Journal of Experimental Medicine, Tokyo

9: 333-401 (Aug. 20) 1931

Physical and Chemical Properties of Bacteriophages. K. Muramatsu. —p. 333.
Studies on Generation of Bacteriophage, Especially Paratyphosus A Phage. T. Yoshizumi.—p. 343.
Supplement to Knowledge of Bacteriophage Active for Cholera Vibrio. T. Yoshizumi.—p. 353.
Criticism on Specificity of Bacteriophage. T. Yoshizumi.—p. 359.
A Mucoid Colony Bacillus ("Miyata" Strain) Belonging to Paracolon Group: Its Immunity Reactions. S. Yasuda.—p. 365.
Pathogenesis of Botulism: Experimental Study. Y. Kudo.—p. 373.
Experiment on Sterilization of Oysters by Chlorine. Y. Yasuhara.—p. 385.

Annales de l'Institut Pasteur, Paris

46: 579-690 (June) 1931

Report of Ukrainian Commission for Study of Vaccination of the New-Born with B C G. B. Jakhnis and S. Chagalova.—p. 579.
Action of Acetone Extracts of Tubercle Bacilli on Pathogenic Properties of Filtrable Elements of Virus of Tuberculosis. L. Nègre and J. Valtis.—p. 587.
Technic of Obtaining Filtrates Containing Filtrable Elements of Virus of Tuberculosis. C. Ninni.—p. 598.
Effects of Repeated Reinoculations of Guinea-Pigs with B C G. L. Baloret.—p. 604.
Twort-d'Hérelle Phenomenon and Bacteriophagia. F. d'Hérelle.—p. 614.
Idem. A. Gratia.—p. 619.
Staphylococcal Bacteriophage. A. Gratia.—p. 622.
Infectious Agent in Schlammfieber. S. Tarassoff.—p. 635.
Treatment of Bacterial Infections: Vaccine Treatment and Immunization in Vitro. A. E. Wright.—p. 639.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 1031-1121 (June 22) 1931. Partial Index

*Effect of Hyperthermia on Asthmatic Crises in Adults. Pasteur Vallery-Radot and G. Maurie.—p. 1046.
Congo Red Test in Diagnosis of Amyloidosis. M. Labbé, R. Boulin, L. Justin-Besançon and Zamfir.—p. 1092.
*Nodular Pulmonary Cancer Secondary to Cancer of Breast. Plazy, Gouriou and Germain.—p. 1100.
Inefficacy of Arsphenamines and Bismuth in Late Preventive Treatment of Parenchymatous Neurosyphilis. A. Sézary.—p. 1109.

Effect of Hyperthermia on Asthmatic Crises.—Pasteur Vallery-Radot and Maurie state that it is a well known fact that asthmatic crises disappear in the course of a fever. From their studies of the effect of fever on forty-five asthmatic persons they conclude as follows: Both natural and artificially produced hyperthermia arrests in the majority of cases the subintrant attacks of asthma in adults. Natural hyperthermia may suppress the crises for a long time after the cessation of the fever, whereas the effect of artificially produced hyperthermia is always limited. The favorable action of the fever is not produced unless a certain degree of temperature, which varies with each person, is reached.

Cancer of Lung.—Plazy and his collaborators report a case of cancer of the lung secondary to a cancer of the right breast which developed on an old war wound. They state that the pulmonary signs that were observed in this case suggested pulmonary sclerosis of a tuberculous nature. However, the negative examinations of the sputum and the comparison of the clinical and roentgen examinations permitted one to eliminate this hypothesis and to consider the possibility of a nodular cancer of the lung. The presence of adenopathies as well as of the painless "nodule" of the right breast treated previously with roentgen irradiations seems to confirm the diagnosis.

Journal de Radiologie et d'Electrologie, Paris

15: 319-408 (July) 1931

*Treatment of Poliomyelitis. L. Delherm.—p. 321.
Roentgen Irradiation of Suprarenals in Dry Gangrene. A. Zimmern, J. A. Chavany and R. Brunet.—p. 327.
Roentgenography of Petromastoid Region. Maingot, Moret, Sourice. —p. 332.
Roentgenography in Ethmoid Lesions. G. Chaumet.—p. 337.
Treatment of Cutaneous Epitheliomas: Raclage, Electrocoagulation, Electrolysis and Roentgen Therapy. J. Belot.—p. 345.
Alternative Long-Period Galvanic Waves. Laquerriere, Loubier and Jaudel.—p. 361.
Electrical Treatment of Chronic Rheumatism. H. Dausset.—p. 369.
Variations in Initial Resistance of Human Body to Electric Current. A. Strohl and H. Desgrez.—p. 371.
Anencephalia: Case. C. Arif.—p. 376.

Treatment of Poliomyelitis.—Delherm believes that results in the treatment of poliomyelitis are equivocal since in many cases improvement or cure may be spontaneous. After summarizing the results in 280 cases and discussing the triad of roentgen therapy, diathermy and electrotherapy, the author concludes: 1. Roentgen therapy is a reasonable treatment at the beginning of the disease or when there is no destruction. It is preferable in the milder forms of the disease. Ascending or postero-anterior electrotherapy as well as diathermy and ionization may be used with equal effectiveness. These methods assist in cellular exchange when there has been no destruction with sclerotic tissue formation. 2. In the treatment due to malnutrition and defective circulation the limbs or members, not the muscles, are to be treated. The author favors local

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hot baths, a sort of double walled boot filled with warm water, sun baths, infra-red baths, voltaic current, and diathermy. 3. In the excitomotor treatment of the muscles, the author recommends the galvanic current of alternating long period wavelengths with the action selective on the degenerating muscles. One must not overlook the trophic action of the long period galvanic current. Even in muscles giving a reaction of degeneration (but with conservation of excitability), one can apply an electric current interrupted with a metronome and a little later apply the faradic current in spaced or rhythmic tetanizing shocks according to the resistance in the muscles that react to the faradic current. It is the belief that ultraviolet rays influence muscular tonicity. In practice the author employs the two currents with a diathermy voltaic combinator, utilizing their double trophic action as well as generating excitomotor current during the passage of the diathermy current.

Presse Médicale, Paris

39: 889-912 (June 17) 1931

*Varicose Veins: Treatment with Injections of Glycerin. F. Maignon, C. Grandclaude and M. Lambret.—p. 889.
Chronic Cutaneous Infections. R. Sabouraud.—p. 890.
Mechanism of Icterus in Obstruction of Common Bile Duct. E. Chabrol, M. Maximin and A. Busson.—p. 892.
Terminology of Articular Manifestations. M. P. Weil.—p. 894.

Injections of Glycerin in Treatment of Varicose Veins.—Maignon and his collaborators describe their experiments on the injection of various sclerosing substances into the veins of animals. They finally selected glycerin as the most suitable because it gives the most favorable and permanent results. After comprehensive experiments on dogs the authors applied their method of treatment of varicose veins to human beings and obtained the same excellent results. They state that the treatment of varicose veins with injections of glycerin is based on two indications: (1) the use of a more sclerosing and nontoxic substance; (2) the production of the sclerosis with obliteration by means of injections that are given at intervals of from four to eight days. One should not exceed this interval because if one does the sclerosis is less marked. The doses employed should be from 5 to 10 cc. of a 50 or 75 per cent solution of glycerin in distilled water. The injection should be administered slowly and in the direction of the foot, and the operator's thumb should not be removed from above the point of injection for one or two minutes. These injections are well tolerated and do not cause local or general disorders. Of the numerous cases that they have collected, the authors cite five from old persons presenting a bad general condition and various pathologic conditions, particularly cardiac and pulmonary. However, even in these persons the results were so favorable that the authors recommend their method of treatment of varicose veins in all cases, because it is effective, harmless and simple.

39: 945-960 (June 27) 1931

*Hypotension of Cerebrospinal Fluid After Traumas of Skull. R. Leriche.—p. 945.
Do Bismuth and Arsenic Effect a Complete Cure of Syphilis. C. Levaditi and P. Lépine.—p. 948.
*Treatment in Rupture of Uterus During Labor. J. Murard.—p. 951.
Hyperpnoea in Diagnosis of Localized Lesions of Nervous System. Laruelle and Heerus.—p. 953.

Hypotension of Cerebrospinal Fluid.—Leriche states that the syndrome of traumatic hypotension of the cerebrospinal fluid, to which he called attention ten years ago, has generally been considered as a negligible quantity in the complex melange of the usual cranial traumatism. It has been regarded as only a manometric curiosity of no clinical importance, prognostic value, or therapeutic significance. Among seventy-five cases of cranial traumas that the author has observed during the last ten years he found the syndrome of hypotension twelve times and each time he noted the efficacy of the treatment that he had previously recommended. The signs of a true hypotension of the cerebrospinal fluid in a case of cranial trauma are clear: only one or two drops of cerebrospinal fluid on lumbar puncture and a definite manometric hypotension (less than 10 with a Claude manometer and with the patient seated). The author discusses the symptomatology and mechanism of the hypotension in the cases he observed and reports the histories of some of them. He also presents in detail his method of treatment. He first injects from 20 to 40 cc. of distilled water subcutaneously or intravenously. If this is not followed immediately by improvement he then injects 500 cc. of physiologic solution of sodium chloride subcutaneously or intravenously. Sometimes it is necessary to repeat the injections within the next few days. One should not forget that the treatment may provoke hypertension and one must know when to stop it. If necessary one should resort again to manometry and be guided by its indications. In conclusion the author stresses the fact that the treatment of skull fractures must be individualized.

Treatment in Rupture of Uterus During Labor.—Murard reports three cases of rupture of the uterus during labor. One case, in which expectant treatment was used, ended fatally. In the other two cases, timely intervention saved the lives of the patients. If one treats the patient by the abdominal route, one may suture the tear in the uterus, perform a Porro operation or do a hysterectomy. If one uses the vaginal route, one may perform a simple tamponade or a hysterectomy. The author recommends the following prophylactic rules during labor: 1. One should not apply forceps until the dilatation of the cervix is complete. 2. When a version is performed after the bag of water has ruptured, one should always think of the possibility of a rupture of the uterus and manipulate gently. 3. After any operative procedure and before giving an intrauterine injection, one should always verify the integrity of the cervix and the lower uterine segment.

Revue Française de Pédiatrie, Paris

7: 257-400, 1931

Alsatian Epidemic of Acute Anterior Poliomyelitis in 1930. Rohmer, R. Meyer, Phélizot, Tassovatz, Vallette and Willemin.—p. 257.
Ocular Lesions During Epidemic of Acute Anterior Poliomyelitis in Lower Rhine in 1930. J. Nordmann and E. Duhamel.—p. 308.
Dehydration in Nurslings. S. E. Burghi.—p. 311.
Phonation After Staphylorrhaphy. V. Veau and Suzanne Borel.—p. 333.
Epidemiology of Occult Diphtheria in Nurslings and Frequency of Diphtheritic Otitis Media. L. Garot and J. van Beneden.—p. 343.
*Diagnostic and Prognostic Value of Examination of Sugar Content of Cerebrospinal Fluid of Children with Meningitis. T. Mogilnicki.—p. 353.
Spontaneous Typhoid. V. Mikulowski.—p. 363.
Value of Pirquet Reaction. A. Wallgren.—p. 368.
Sedimentation Reaction in Vaccination with B C G. A. Landau.—p. 374.

Sugar in Cerebrospinal Fluid of Children with Meningitis.—Mogilnicki reports the results of his observations in 217 children with meningitis, on whom 516 examinations of the cerebrospinal fluid were made. His conclusions in regard to the amount of sugar found are as follows: In the course of tuberculous meningitis there is always a marked hypoglycorrhachia. The inflammatory fluid in tuberculous meningitis has great glycolytic power. In tuberculous meningitis the amount of sugar in the blood is normal. In the purulent cerebrospinal fluid there is a diminution in the amount of sugar but it is not as pronounced as it is in tuberculous meningitis and it is not present in all cases. In cases of epidemic meningitis in which the patient recovers, the amount of sugar increases at the moment the improvement in his condition begins. In meningismus with noninflammatory fluid the amount of sugar remains normal or is increased. This fact is of great importance for the differential diagnosis between meningismus and tuberculous meningitis. From the clinical point of view the examination of the cerebrospinal fluid for sugar is of greatest value when the fluid is clear.

Revue Médicale de la Suisse Romande, Lausanne

51: 451-514 (June 25) 1931

Influence of Pitressin on Arterial Pressure. E. Thomas.—p. 451.
*Congenital Dislocation of Hip. M. C. Scholder.—p. 467.
*Treatment of Infections with Bacteriophage. A. Liengme.—p. 482.

Congenital Dislocation of Hip.—Scholder reports six cases of congenital dislocation of the hip. He states that many theories have been proposed to explain the pathogenesis of this condition. Statistical studies show that congenital dislocation of the hip is frequent in white persons but exceptional in Negroes; it never occurs in animals. There has been noted also an extreme predominance of this condition in females (seven cases in females to one in males). Heredity frequently plays a part in this condition. The author states that the following four groups of facts permit one to make a diagnosis of

congenital dislocation of the hip: (1) statics, (2) disturbances in function and walking, (3) pathologic changes found on direct examination and (4) roentgenograms. He states also that the results of treatment are good, provided the dislocation is reduced as soon as possible, always before the child is 4 years of age. After the age of 4, the muscular and capsular resistances increase and the reduction becomes difficult. After the age of 15, it is almost impossible. The author gives detailed case histories of his six patients and concludes by stressing the fact that a perfect result is obtained only when the dislocation is reduced at an early age and that the chances of cure diminish with the age of the person.

Treatment of Infections with Bacteriophage.—Liengme summarizes the results of his experiences in the treatment of various infections with bacteriophage. He considers d'Herelle's bacteriophage a powerful therapeutic agent in infections. The indications for its use are based chiefly on the fact that it is necessary to obtain an autobacteriophage. The best results are obtained in local infections. In the author's estimation it is an ideal method of treatment that is not accompanied by toxic action on the cells and that does not produce a reaction. Depending on the clinical aspect and the action of the bacteriophage, cure usually occurs in from one to eight days after the institution of the treatment. When large losses of substance have occurred as a result of infectious necrosis, more time is required for the closure of the wound. Nevertheless even in these cases the infection is cured. All that one has to do is to wait for cicatrization. One may employ occasionally a polyvalent bacteriophage as a preventive measure in contaminated accidental wounds and thus obtain perhaps a healing by first intention which could not be obtained in any other way. The treatment of local infections with autobacteriophage is so simple and gives such brilliant results that it deserves to be used extensively.

Annali Italiani di Chirurgia, Naples

10: 637-775 (June 30) 1931.

Technic of Plastic Surgery of Hip. L. de Gartano.—p. 637.
Recovery from Gastric Wounds in Normal and in Sensitized Rabbits (Anaphylactic Theory of Gastric Ulcer). F. Paolucci.—p. 646.
Pathologic Changes of Meniscus. A. Turco.—p. 667.
*Causes of Death in Acute Intestinal Occlusions. C. Trinchera.—p. 682.
Tuberculosis of Mammary Gland in Relation to Trauma. M. Prati.—p. 697.
Examination of Liver Functioning by Means of Bengal Rose in Experimental Peritonitis. C. di Gioia.—p. 715.
Alkali Reserve in Surgical Infective States. F. Specialé.—p. 729.
Serous Dermoid Cyst of Scalp. A. Cardia.—p. 733.
Operative Indications in Traumatic Cerebral Compressions. O. Cantelmo.—p. 742.
Nerve Surgery in Functional Disturbances of Female Organs of Reproduction. G. Gucci.—p. 754.

Causes of Death in Acute Intestinal Occlusions.—In occlusions experimentally induced in dogs whereby the small intestine was strangulated at different levels, Trinchera carried out systematically a series of researches to determine the functioning of the liver and the kidney. From the observations made, it appears that the functioning of the two organs is seriously impaired, especially that of the liver, even in cases without necrotic parietal lesions. In all cases there was a slight hypochloridemia. The author, however, considers more plausible the theory of autointoxication as the interpretation of the mechanism of death in acute intestinal occlusions, and is inclined to attribute great prognostic value to the bengal rose test and to the xanthoproteic test, as to the outcome of an intervention in acute intestinal occlusion.

Chirurgia degli Organi di Movimento, Bologna

16: 111-206 (June) 1931

Chondrodysplasia. U. Vallebona.—p. 111.
Intraspinal Diarthro-Amphiarthrosis in First Thoracic Vertebra in Man. R. Bertelli.—p. 139.
Osteosarcoma of Vertebral Arches. R. Zanoli.—p. 142.
*Attachment of Autoplastic Grafts of Striated Muscles in Relation to Their Nervous Connections. A. Comolli.—p. 151.
Compensatory Filter for Roentgen Diagnosis. P. Ottonello.—p. 181.
Uncommon Congenital Malformations of Limbs. L. Magni.—p. 185.

Attachment of Grafts of Striated Muscles in Relation to Their Nervous Connections.—Comolli concludes from his researches that in rabbits an autoplastic graft of striated muscle tissue, applied to the muscles in the form of a flap or of an entire muscle, becomes attached. It survives, at least it survived for the period of his research, from three to five months. He found that the tissues of the graft and of the host take on intimate mutual relations, partly through the regeneration of the muscle fibers of each and partly through the formation of a cicatrix of connective tissue between the graft and the host. The graft may survive and present a fairly normal structure after three months. On suture of a nerve and fixation of the central head of a divided nerve of the graft, the latter may become rapidly innervated (in about twenty-six days or a little longer), with neoformation of the motor end-plates. If the muscle of the host has been denervated, the regenerated nerve of the graft is extended also to the muscle of the host by an extension that varies in different cases. If, however, the innervation of the host has remained intact, the regenerated nerve fibers are confined to the graft.

Pediatria, Naples

39: 681-735 (July 1) 1931

*Free and Combined Sugar in Blood of Children. A. Lucca.—p. 681.
Aseptic Puriform Meningitis. M. Prebil.—p. 696.
Pulmonary Abscess in Children and Its Treatment with Emetine Hydrochloride. F. Martilloti.—p. 707.

Free and Combined Sugar in Blood of Children.—Lucca found, in sixteen healthy children (eleven of them nurslings), that the combined sugar, fasting, ranged between 0.32 and 0.51 Gm. per thousand cubic centimeters, parallel to variations of the free sugar of from 0.75 to 1.06 Gm. Producing in five healthy nurslings a glycemic curve by the subcutaneous introduction of dextrose, the author obtained a perceptible increase of free sugar after the lapse of from ten to fifteen minutes, with return to about normal in from one and one-fourth to one and one-half hours. The combined sugar did not increase correspondingly but instead, after from ten to fifteen minutes, there was a slight absolute diminution and a greater relative diminution. If the free sugar returned to normal, also the combined sugar returned to the previous figures. In the acute diseases of nutrition (diarrhea and intoxication) there was a greater increase, the more grave the disease (up to from 1.36 to 1.41 Gm. per thousand cubic centimeters), of the free sugar and a parallel increase of the combined sugar, the increase being relatively a little more accentuated in the more grave cases. In the chronic diseases of nutrition the values of free sugar were not far from normal. Also the combined sugar remained within physiologic limits.

Policlinico, Rome

38: 909-948 (June 29) 1931. Practical Section

*Calculi of Gallbladder Complicated by Echinococcosis of Liver: Case. F. Speciale.—p. 909.
Hyperplasia of Liver in Echinococcosis of Liver: Case. M. Faberi.—p. 912.
*Echinococcosis of Spleen: Case. G. Moro.—p. 915.

38: 317-364 (July 1) 1931. Medical Section

Observations on Blood in Recurrent Malarial Infection. S. Pastore.—p. 317.
Hemoglobin Resistance in Pernicious Anemia Treated with Liver Feeding, and Its Diagnostic Value. S. Manca.—p. 330.
Albumin-Globulin Relation in Blood Serum of Persons with Nephritis. R. Galeotti.—p. 338.
Ten Cases of Acute Leukemia. M. Galli.—p. 352.

Cholelithiasis Complicated by Echinococcosis of Liver.—Speciale states that enlargement of the liver in patients living in regions in which echinococcosis is common and whose general condition is not in relation to the hepatomegaly should make one suspect the presence of hydatid cyst of the liver, as a rule localized in the posterosuperior aspect of the organ. The enlargement of the liver caused by neoplasms, amyloid degeneration or gummas is associated with rapid impairment of the patient's condition. The localization of hydatid cysts in the posterosuperior aspect of the liver is rare. When complicating lithiasis of the gallbladder, the condition is grave. There is danger of suppuration of the cyst and of its rupture into the digestive organs. In this complication the symptoms of lithiasis overshadow those of hydatid cyst, whose presence may be discovered late when the cyst ruptures. The hardness in the upper region of the liver in lithiasic patients from hydatid regions is an indication either that an hydatid cyst is present in the

liver or that an hydatid cyst has ruptured into the liver, since uncomplicated lithiasis does not give this symptom. A case is reported in a girl, aged 17, in whom the hydatid cyst had a silent evolution until grave lithiasic symptoms appeared. While an operation for lithiasis was being contemplated, the patient expelled by the rectum the empty mother membrane of an hydatid cyst and hydatid fluid in the feces. The microscopic examination of both the membrane and the feces confirmed the diagnosis. The patient was in a septic condition and became worse and died. At necropsy it was found that the hydatid cyst had made a large excavation at the site of its implantation (posterosuperior aspect of the liver). Calculi were present in the gallbladder and there was a suppurative process in the liver. The cyst came out of the site of its implantation, perforated the duodenum and finally ruptured into the intestine. The anatomic diagnosis was biliary lithiasis complicating suppurative echinococcosis of the posterosuperior aspect of the liver, associated with secondary suppurative angiocholitis and diffuse suppurative hepatitis.

Echinococcosis of Spleen.—Moro reports two cases of echinococcosis of the spleen in adult women. One of the patients presented an enormous enlargement of the spleen and of the abdomen and intense eosinophilia. The pleura was also affected in the process and eosinophils were more numerous in the pleural exudate than in the blood. The author states that echinococcosis of the spleen should always be treated surgically, either by splenectomy or by marsupialization. One of the author's patients was successfully treated by splenectomy and in the other one marsupialization gave satisfactory results. Splenectomy constitutes a less aggressive treatment. Marsupialization should be resorted to in grave cases. It demands a longer postoperative care than splenectomy in order to avoid pleural, pericystic, intracystic or septic complications. One should not be, however, an absolute partisan of either operation but should use the one that seems indicated in the individual case.

Semana Médica, Buenos Aires

38: 1733-1800 (June 25) 1931. Partial Index

Surgical and Clinical Pathology of Nervous System of Anus and Rectum. F. Zorraquin.—p. 1733.
*Robertson-Lavalle's Operation in Treatment of Tuberculous Spondylitis. C. Robertson-Lavalle.—p. 1743.
Manoiloff's Serologic Reaction for Diagnosis of Pregnancy, as Made with Parturients' Blood and with Umbilical Blood. J. A. Beruti and J. Leon.—p. 1755.
Biliary Lithiasis: Pathogenesis. M. Boix Pou.—p. 1761.
Foreign Body in Cecum of Child: Removal Through Appendix: Case. A. Olivieri Acosta.—p. 1781.
Syphilis: Treatment. F. Gerardo Russo.—p. 1782.

Robertson-Lavalle's Operation in Treatment of Tuberculous Spondylitis.—Robertson-Lavalle states that the autoimplantation of bone in tuberculous areas of bones induces a general specific humoral action by means of which tuberculous processes within or around the joints are healed. The beneficial humoral effect of the bone autografts acts also in other tuberculous foci at a distance. The method gives good results in spondylitis tuberculosa. Pains, muscular contracture, toxemia, paraplegia and cold abscesses disappear clinically if the autograft is properly placed in the hyperemic vertebra, where the tunnel for the graft should be prepared (care being taken not to pierce the purulent areas of the vertebra) and then the tunnel should be filled with a graft of normal bone 2 or 3 cm. long by 3 mm. thick, taken from the tibia. The topographic diagnosis should be made as exact as possible in order to avoid the necessity of performing a second operation. As a rule the roentgen examination made before and after the operation shows a rapid healing of the tuberculous lesions associated with remineralization of the pathologic vertebra and regeneration of the bone substance within the tuberculous lesions. However, when roentgen examination (anteroposterior and lateral views taken some days after the operation) proves that the bone implant did not perforate the hyperemic area, the patient should be operated on a second time and the bone splinter properly placed. Patients with any form of the disease and at any age should not be deprived of the benefits of the operation. They should be previously tested for syphilis and if the reactions are positive they should be treated. The last antisyphilitic treatment should precede the operation at least two months to insure the elimination of all the antisyphilitic substances, since the presence of any of them in the circulation at the time of the operation diminishes or even annuls the action of the grafts, even when they are introduced according to the proper technic. Some patients obtain better results than others depending on several factors, the principal of which are the type and evolution of the disease, the age of the patient and the presence or absence of complications such as amyloid degeneration in their organs, caused by suppurative processes of long standing, a condition of cachexia, or tuberculosis in some other organs. The operative technic should be determined by the segment (cervical, thoracic or lumbar segment) of the spine affected by the disease. The transplantation of bone is difficult in cases presenting well marked gibbosities. In children aged 3 or 4 years, complete success is obtained when the perforator is given a proper direction and carried down to the mass of the vertebra through the bony neural arches. A cartilaginous septum lies between the small mass of the vertebra and the neural arches. This septum, disproportionately large in children, must be pierced.

Deutsche medizinische Wochenschrift, Berlin

57: 1229-1270 (July 17) 1931

Peculiarities of Action of Drug in Hyperthyroidism. H. Freund.—p. 1229.
*Cholecystographic Investigations on Functioning of Gallbladder After Operations on Stomach and Duodenum. H. Kalk and K. Nissen.—p. 1232.
Significance of Examination of Persons Living with Tuberculosis Patients for Recognition of Early Forms of Tuberculosis in Adults. J. Strasburger.—p. 1234.
Morphologic Foundation of Myogenic Cardiac Insufficiency. T. Fahr.—p. 1235. C'en.
Technic of Duodenal Catheterization and of Karlsbad Drink Cure and Mud Packs in Diseases of Gallbladder and of Liver. M. Stern.—p. 1237.
Combination Therapy with Ecbolics. H. Wiesbader.—p. 1238.

Cholecystographic Study of Function of Gallbladder After Operations on Stomach and Duodenum.—Kalk and Nissen direct attention to the fact that following surgical treatment of gatsric and duodenal ulcers there often develop gallbladder disturbances. Formerly it was assumed that the elimination of the secretions of the liver and of the pancreas depended on the stimulation effected by the passage of the gastric contents through the duodenum. This assumption makes it appear logical that if as the result of surgical removal of a portion of the gastro-intestinal tract the food no longer passes through the duodenum, the biliary system will not function properly and gallbladder disturbances will develop. In order to determine whether this theory was correct the authors made functional tests on the gallbladder of patients who had undergone the second operation of Billroth or gastro-enterostomy. They describe the technic of the tests and then report the results, stating that an evacuation of the gallbladder takes place even when the food does not pass the duodenum but enters the jejunum directly. The evacuation reflex of the gallbladder is produced in the upper portion of the jejunum.

Deutsche Zeitschrift für Chirurgie, Berlin

231: 533-644 (July 2) 1931

Traumatic Tetanus and Its Treatment, with Consideration of the Barrier Systems of Central Nervous System. V. Schaefer.—p. 533.
Clinical and Experimental Contribution to Peritendinitis Crepitans. P. Moritsch and A. Blau.—p. 550.
Restoration of Muscular Equilibrium in Surgical Treatment of Congenital Patellar Luxations. F. Felsenreich.—p. 559.
Tuberculous Pericarditis: Case. H. Schneider.—p. 567.
Treatment of Pleural Pulmonary Injuries. M. Ernst.—p. 578.
Successful Surgical Treatment in Pulmonary Embolism. A. W. Meyer.—p. 586.
Topographic Anatomic Investigations on Pulmonary Portion of Vagus and Bronchial Ramifications. V. Romankević.—p. 593.
Topographic Anatomic Investigations of Sacral Portion of Sympathetic Nervous System and Its Rami Communicantes, with Especial Consideration of Their Surgical Exposure. V. Romankević.—p. 604.
Anatomy and Surgical Treatment of Pyloric Stenosis in Nurslings. W. Noetzel.—p. 614.
Thrombophlebitis Following Appendicitis: Treatment. K. G. Katrakis.—p. 625.
Development and Cure of Unusually Large Cavity in Prostate (Prebladder). O. Hennig.—p. 630.
Relapse of Ligneous Thyroiditis. E. Traum.—p. 635.

Jahrbuch für Kinderheilkunde, Berlin

132: 129-256 (July) 1931

Exalcosis in Acute Cerebral Disturbances in Nurslings. E. Schiff.—p. 129.
Investigations on Itch Sensation, Scratching and Pilomotor Reflex in Nurslings. D. Hartmann-Karplus.—p. 140.
Open Air Treatment and So-Called Return Home Cases in Scarlet Fever. H. Zischinsky.—p. 159.
*Epidemic of Septic Infection of Nasopharynx Simulating Severe, Acute Enteritis. B. Exner and H. Kotrnetz.—p. 169.
Iron Content of Blood of Nurslings. I. A. Kotikoff.—p. 180.
Permeability of Blood-Cerebrospinal Fluid Barrier for Aromatic Bodies in Acute Alimentary Disturbances of Nurslings. S. Schaferstein and S. P. Persitz.—p. 194.

Septic Infection of Nasopharynx Simulating Enteritis.—Exner and Kotrnetz describe the course of a house epidemic in a home for nurslings. Within six weeks, forty children had sore throat and severe gastro-intestinal disturbances. From the nasopharynx of the children and from the internal organs hemolytic streptococci were cultivated. A polyvalent autovaccine, prepared from the streptococci, together with streptococcal serotherapy gave favorable therapeutic results. The port of entry of the hemolytic streptococci was probably the nasopharyngeal ring. This primary focus of infection led to a general sepsis, which was nearly always localized in the digestive and respiratory tracts.

Monatsschrift für Kinderheilkunde, Berlin

50: 217-296 (July 4) 1931

Ventilation Effect of Intoxication Respiration: Pathogenesis of Intoxication in Infants. O. Berger and S. Rosenbaum.—p. 217.
*Clinical and Hematologic Aspects of Tuberculous Meningitis and Its Combat. O. Herz.—p. 237.
Special Form of Postbitis Juvenilis. K. Ochsenius.—p. 253.
Clinical Hematology During Childhood. E. Stransky.—p. 257.
Acute Aseptic Meningitis (Epidemic Serous Meningitis). O. Herz.—p. 233.

Tuberculous Meningitis.—Herz states that tuberculous meningitis is frequently not recognized, partly because the symptomatology as described in textbooks is what is observed in older children, in whom tuberculous meningitis is comparatively rare. Another cause of failure to recognize tuberculous meningitis is the belief that it begins slowly, whereas in fact it often has a sudden onset. Another factor that is often cited as militating against tuberculous meningitis is the absence of a tuberculous heredity; this is likewise not valid, for in many cases of tuberculous meningitis the source of infection is unknown. An absolute reliable basis for the diagnosis is the demonstration of the bacilli in the cerebrospinal fluid. However, in the beginning stage of the disease the result of the examination is positive in only about one third of the cases. In the later stages the bacilli can nearly always be demonstrated, but at this time there are also other symptoms; namely, vomiting and increased dermographism. If in addition to these signs the cerebrospinal fluid is clear, shows an increase of cells and a positive Pandy reaction, the condition need only be differentiated from encephalitis or aseptic meningitis. The frequently mentioned weblike formation in the cerebrospinal fluid is not pathognomonic for tuberculous meningitis but occurs also in other forms of meningitis. However, the decrease in the sugar content of the cerebrospinal fluid is a sign of the tuberculous form. Tuberculous meningitis generally lasts for about three weeks and the mortality is 100 per cent. The fever curve is not characteristic. Toward the end, hyperthermia is sometimes present but in some instances the temperature is below normal. The blood picture is characterized by a slight toxic granulation with slight deviation toward the left and marked granulocytosis. Tuberculous meningitis occurs most frequently during the first two years of life and especially during the months of April and May. Because of the unfavorable prognosis the main object should be prevention. In discussing the various factors that may lead to tuberculous meningitis the author points out that tuberculosis in persons who come in close contact with children is an etiologic factor, especially in small children, for statistics show that in 57 per cent of cases of tuberculous meningitis the infection was intrafamilial. Previous infectious diseases, such as measles, whooping cough and varicella, are of minor influence, but the author is convinced that the frequently indiscriminate use of quartz lamp irradiations is often an etiologic factor in tuberculous meningitis. He also recommends that tuberculous infants and children up to the age of 2 years be placed in special institutions, for if they receive proper care the tuberculosis may not be fatal.

Münchener medizinische Wochenschrift, Munich

78: 1167-1206 (July 10) 1931

Radical Treatment of Cancer of Rectum Under Influence of Electrocoagulation. Kirschner.—p. 1167.
History of Guinea-Pig Anaphylaxis and of Antianaphylaxia. R. Otto.—p. 1170.
*Simplification of Demonstration of Tubercle Bacilli by Laryngeal Smear: Its Significance for Early Diagnosis of Open Pulmonary Tuberculosis. H. Grass.—p. 1171.
Recognition of Dissimulation of Open Pulmonary Tuberculosis by Means of Demonstration of Tubercle Bacilli in Laryngeal Smear. K. Bruche.—p. 1173.
Intensification of Dietary Influence on Sympathetic Disturbances. E. Keining and G. Hopf.—p. 1174.
Chronic Polymyositis with Marked Eosinophilia and Periodically Returning Febrile Exacerbations: Case. E. Fiedler.—p. 1176.
Aspired Foreign Body Coughed Up Again After Two Days by Nursling Aged Eight Months. Büchner.—p. 1177.
Atropine Treatment in Patients with Encephalitis. E. Schenk.—p. 1177.
Indications for and Results of Roentgen Treatment in Children's Diseases. W. Birk.—p. 1179.
New Examination Chair for Gynecology, Cystoscopy and Romanoscopy. H. Gänsbauer.—p. 1182.
Treatment of Poliomyelitis and Epidemic Encephalitis and Especially Their Late Sequelae. G. Arghiris.—p. 1183.
Serum Prophylaxis of Puerperal Fever. A. Schousberger.—p. 1183.
Tuberculosis and Race. W. Nussbaum.—p. 1184.
Occupational Therapy in Pulmonary Tuberculosis by Combining Sanatorium with Agricultural Enterprise and Settlement. Schnurrer.—p. 1185.

Demonstration of Tubercle Bacilli by Laryngeal Smear.—Grass states that, if tuberculosis becomes malignant, softening usually sets in, which gradually leads to cavern formation with its serious results. It is therefore important to detect softening in is earliest stages. By taking a smear from the larynx this is generally possible at a time when there is not yet sufficient sputum to permit a diagnosis. The laryngeal smear is obtainable at any time. Thus one does not have to rely on the patient to send his sputum, and simulation as well as a dissimulation can be avoided. In some instances the diagnosis can be made directly from the smear; however, it is often time consuming, since, because of the small quantity, one has to work with great care. The positive results become more numerous, the test is more reliable and the method is simpler if, instead of or besides the direct demonstration, the culture method is resorted to. It is advisable that the examinations be made in laboratories.

Zeitschrift für Tuberkulose, Leipzig

61: 177-304 (July) 1931

Significance of Dose of Infection, Natural Resistance and Acquired Immunity for Development and Course of Tuberculosis. B. Lange.—p. 177.
Investigations on Causes of Lübeck Fatalities and on B C G (Rejoinder to Criticism). A. Calmette.—p. 188.
Results of Vaccination of Infants with B C G: Vaccination of One Each of Twins. B. Jakbnis and S. Chagalowa.—p. 191.
*Treatment of Pulmonary Cavities. H. Boit and H. Scholz.—p. 193.
Bilateral Collapse Therapy in Pulmonary Tuberculosis. A. Freund.—p. 203.
*How Long May a Bilateral Pneumothorax be Maintained? S. Bader.—p. 209.
Perihilar Auscultation Sign in Lateral Position in Beginning Pulmonary Tuberculosis (Sihle). O. Rautenberg.—p. 213.
*Tuberculosis of Bronchial Lymph Nodes in Adults. T. Hausmann.—p. 218.
First Contact Infection with Tubercle Bacilli During Childhood. K. Nüssel.—p. 228.
Epinephrine Curves in Tuberculous Children. A. Hecker.—p. 231.
Crusade Against Tuberculosis by Welfare Alliance in Brandenburg. W. Thonke.—p. 239.
Interruption of Pregnancy on Account of Pulmonary Tuberculosis. Schüler.—p. 243.
Comparative Investigations with Guttadiaphot and with Sedimentation Reaction in Pulmonary Tuberculosis. W. Schoene.—p. 245.
Generalization of Tuberculosis Virus in Various Methods of Infection. M. I. Aksjanzew and A. N. Krewer.—p. 251.

Treatment of Pulmonary Cavities.—Boit and Scholz advise that because of the uncertainty of spontaneous healing of a cavern, collapse therapy should be instituted as early as

possible. In the case of a nonobliterated pleural cavity artificial pneumothorax is the method of choice, but in some cases additional interventions become necessary. If the pneumothorax is ineffective or is impossible, thoracoplasty should be resorted to. The danger of this intervention should not be overestimated. By a preliminary phrenic exeresis the number of ribs that have to be resected may often be reduced. As an independent intervention phrenic exeresis, especially in regard to its permanent action, is of little value. In order to supplement an inadequate paravertebral thoracoplasty, the authors recommend the removal of broad portions of the upper ribs and pleuropneumolysis with plombierung of the cavity. The plug (paraffin) is introduced without pressure. Plombierung is advisable also in tertiary caverns of the upper lobes with broad adhesions of the surrounding tissues, when the other portions of the lung are not involved and thoracoplasty therefore is not justified.

How Long May a Bilateral Pneumothorax be Maintained?—Bader reports the clinical history of a woman, aged 30, in whom a bilateral pneumothorax was maintained for two and one-fourth years. During the ambulatory treatment the bilateral exudate and the development of a fibrin layer over the pulmonary pleura did not receive sufficient attention. As a result of this the lungs could not completely expand when the pneumothorax was released, and an exudate developed again on both sides. This case report shows that although it is generally assumed that a unilateral pneumothorax can be maintained for about two years, this cannot be applied without reservation to a bilateral pneumothorax. For if it is a serious matter when the collapsed lung does not expand again in unilateral pneumothorax, it is much more serious if this happens in bilateral pneumothorax. For this reason it is necessary that in patients with bilateral pneumothorax careful attention be given to small exudates and frequent roentgen examinations made in order to detect early the formation of a coating of fibrin over the pulmonary pleura. As soon as the first indications for its development appear in the roentgenogram the pneumothorax has to be released immediately on that side, irrespective of the length of time it has been present. If the lung expands again satisfactorily, the other side can be carefully refilled. But if in the further course an exudate develops on this side also, the decision whether to release the pneumothorax on this side has to be based on the expansibility of the other lung. The author thinks that in most cases it will not be necessary to maintain a bilateral pneumothorax for two years. For the lung that is less seriously involved a pneumothorax of one year's duration is usually sufficient, whereas on the other side it may be maintained for two years.

Tuberculosis of Bronchial Lymph Nodes in Adults.—On the basis of his own clinical and necroscopic materials and on reports in the literature Hausmann concludes that the opinions of those clinicians who assert that caseous bronchadenitis occurs only in children and not in adults are no longer tenable. His observations indicate that caseous bronchadenitis and even total caseation of the lymph nodes occurs quite often in adults. Caseous tuberculosis of the bronchial lymph nodes is comparatively rare in manifest progressive pulmonary tuberculosis, but it is frequent in latent pulmonary tuberculosis and in patients in whom the lungs are free from tuberculosis but in whom other organs are affected with it. In such cases tuberculosis of the bronchial lymph nodes is the starting point of the generalization with or without dissemination into the lungs. In adults, tuberculosis of the bronchial lymph nodes is usually a manifestation of the primary infection continuing into adult life. In secondary reinfection phthisis, caseous tuberculosis of the bronchial lymph nodes is rare and in the primary infection in adults it is likewise rare. In order to detect tuberculosis of the bronchial lymph nodes, a small surface percussion (sort of threshold percussion) is helpful. This reveals a Koranyi dulness and a paravertebral dulness. These areas of dulness correspond to the tracheobronchial lymph nodes, which are not detectable by roentgenoscopy. Besides these areas there is an area of dulness corresponding to the hilar shadow in the roentgenogram. The latter area together with the paravertebral area of dulness makes the outline of a butterfly. The decreased resonance is caused not so much by the lymph nodes as such but rather by the complex of lymphadenitis and mediastinitis and eventually also by atelectasis of the adjoining portions of the lung.

Zentralblatt für Chirurgie, Leipzig

58: 1745-1808 (July 11) 1931

*Extirpation of Carcinoma of Rectum: Suggestions for Sacral and Abdominosacral Operation. O. Goetze.—p. 1746.
Osteodystrophia (Paget): Its Relation to Traumas. A. W. Fischer. —p. 1766.
Lead Pencil and Indelible Pencil: Different Mode of Healing into Tissues. E. Glass.—p. 1770.
Simple Procedure to Relieve Tension of Abdominal Wall in Suture of Abdominal Wall. K. Mermingas.—p. 1771.
Torsion of Pedicle of Accessory Spleen. P. Geiger.—p. 1772.
Treatment of Ischemic Muscle Contractures. G. Haberler.—p. 1774.
Radical Vaginal Operation of Vaginal Cancer with Resection of Adjoining Portion of Rectum. G. Páll.—p. 1781.
Technic of Empyema Operation. K. Walz.—p. 1789.
Exophthalmic Goiter and Blood Pressure. G. Wiberg.—p. 1791.

Extirpation of Carcinoma of Rectum.—Goetze describes the pathologico-anatomic aspects of a radically removed carcinoma of the rectum and discusses the essential requirements of a radical operation. Further he describes a new sacral method of operation. By a new way of approach from the back between the os sacrum and the fascia pelvis visceralis the peritoneal cavity is opened at both sides of the rectum. At the level of the promontory or somewhat higher the superior hemorrhoidal artery is ligated and divided and then from the promontory downward the rectum is removed. The author also discusses the anatomy of the fascia pelvis visceralis and its significance in the surgical treatment of cancer of the rectum. The abdominosacral method of extirpation in carcinoma of the rectum is so modified that by the abdominal method only the ligation and division of the superior hemorrhoidal artery is done. All other interventions are made by way of the new sacral approach.

Arkhiv Biologicheskikh Nauk, Leningrad

31: 1-160, 1931

Glass Gas Burner: New Type. J. J. Lavrinovich.—p. 5.
Helminthic Fauna in Turkomans. N. N. Stepanov.—p. 9.
Typhoid and Paratyphoid in Rabbits: Experimental Studies. A. A. Valdman.—p. 17.
Decomposition of Fats by Reduction of Sulphates by Micro-Organisms. G. Seliber, R. Katznelson and A. Sedykh.—p. 25.
Atypical Bacteria of Diphtheritic Group. K. Mouratova.—p. 33.
*Reduction in Action of Some Poisons Under Influence of Congo Red. J. R. Petrov.—p. 59.
Studies on Nitrification. A. L. Bytschkovakaya.—p. 69.
Secondary Mitogenic Radiation. A. G. Gurevich and L. D. Gurevich. —p. 85.
Influence of Light on Mitogenic Effect. A. P. Potoskaya.—p. 89.
Cellular Forms of Interstitial Tissue of Testis. A. A. Stein.—p. 103.
*Atypical Proliferations of Epithelium. V. G. Garshin and J. A. Pigalev. —p. 129.
Principal Laws of Mitogenic Excitation. A. G. Gurevich.—p. 149.

Congo Red.—Petrov states that in some of his previous researches he demonstrated that various dyes possess an influence on curare in diminishing its toxic effect. He continued his experiments on the action of congo red on curare, strychnine and cobra venom. The results obtained were as follows: If one mixes congo red with these poisonous substances there supervenes a formation of colored sediments. The fixation of poisons by the formation of sediments is probably caused by the decrease in their power, a fact that has to be admitted in spite of the chemical or physicochemical character of the reaction. The degree of diminished action of the poison is in proportion to the degree of the stability of the sediments. Sediments are formed as a result of the mixture of congo red with strychnine; they are easily decomposed in a neutral or slightly alkaline medium. The decrease in the action of the same poison was more pronounced in the author's experiments in which frogs were dipped in a solution of congo red and strychnine. The results obtained allow one to assume that in the body fluids the reaction of reduction of the strychnine action is also connected with the formation of sediments. This assumption was supported by the results of the author's experiments with curare. Indeed, the sediments that formed after the mixture of congo red with curare were in a fairly stabilized condition; they were not decomposed in a medium with a p_H from 3.8 to 9.0, contrary to the case of the sediments of a mixture of congo red with strychnine. Complete inhibition of the action of curare is observed after the mixture of curare with congo red in vitro as well as in the body fluids. Thus, the results of these experiments demonstrate that the reaction of a decreased action of

strychnine under the influence of congo red is markedly reduced in the human body; this could be explained by the conditions of the mediums in the organism, which are probably unfavorable to the formation of sediments of congo red with strychnine and, therefore, for its fixation. Furthermore, under the influence of congo red even in vitro there is complete fixation of strychnine. Hence the reaction of fixation of strychnine by congo red is markedly favorable as a rule and could not be compared with that of congo red and curare. Finally, there is no decrease in the action of venom of cobra under the influence of congo red in vitro.

Atypical Proliferation of Epithelium.—Garshin and Pigalev studied the atypical proliferations of epithelium in the inflamed lungs of rabbits, provoked by injection of tar into the lung tissue. They state that the increase in the incidence of cancer of the lung called the attention of many investigators to the changes in the epithelium of the air passages, which could be considered as preliminary stages in the development of cancer. With metaplasia of the epithelium of the lung there often occurs its atypical proliferation; both these phenomena are in close interrelation, for both of them are caused by the regenerative processes. It is assumed that morphologically cancer of the lung and atypical proliferations of the lung epithelium are conditions of the same order. Numerous experiments were performed in this connection; some writers investigated the atypical proliferations of the lung epithelium when the lungs were in an inflammatory state; others produced inflammation experimentally by intrabronchial administration of hydrochloric acid. Still others used substances that were specific in provoking cancer (as tar) or atypical proliferations of lung epithelium. In their experiments the authors employed Russian tar, which was frequently tested and found to be strongly cancerigenic. They describe in detail the technic used and the results obtained with regard to the bronchial as well as the alveolar epithelium; also the importance of employing the kind of tar that acts as toxin on the system as a whole and as an agent for producing local necrosis. The authors reach the conclusion that the action of tar is a secondary one and the appearance of atypical proliferations of epithelium is not connected with the capacity of the tar to stimulate an independent growth of epithelium. The prominent atypical nature of the epithelium proliferations raises the question of interrelation between these proliferations and cancer. However, in spite of the irregularity of these proliferations and of their infiltrative growth, biologically they do not have the principal properties of a true neoplasm. It is true that these proliferations belong to the so-called regenerative group (Fischer) and that is why they could not be considered as neoplasms.

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Digitalis and Morphine. Aryev.—p. 900.
Rôle of Liver in Cholesterol Content of Blood. Myasnikov.—p. 904.
*Lactotherapy in Whooping Cough. Farfell.—p. 909.
*Paris Green Poisoning. Chvorov.—p. 912.
Senile Psychosis. Galant.—p. 915.
Tuberculosis of Tongue. Melnikov.—p. 919.

Lactotherapy in Whooping Cough.—Farfell stresses the importance and fatality of whooping cough as comparable to scarlet fever, diphtheria and smallpox. Seventy-six children, aged from 1 to 4, were chosen for study. He found that 80 per cent of the patients were completely cured by lactotherapy, 7.9 per cent were helped materially and 11.9 per cent were unchanged. The milk was carefully tested and sterilized. Subcutaneous injections were given in the shoulder in daily doses of 0.5, 1, 1.5 and 1.5 cc., consecutively. The third injection gave the greater percentage of favorable results. Only seven patients showed any visible reaction at the site of inoculation and this was evident as a slight swelling with a slight increase in temperature. The monocyte count after injection in the majority of cases came down to normal or almost normal. The author advises lactotherapy in rural districts where epidemics of whooping cough are common.

Paris Green Poisoning.—Chvorov discusses an epidemic traced to wheat flour in several eastern and western sections of Siberia. Such cases of professional poisoning are often overlooked. Many physicians diagnose such cases as gastro-enteritis and colitis. During the first day the patient's condition simulates acute gastritis, during the following days, nephrosis. The disease has the appearance of acute dermatitis and eczema. As a whole the picture is similar to trichinosis. It may simulate polyneuritis. One case was diagnosed colicystitis, but later the diagnosis was changed to typhoid (temperature 39 C., or 102.2 F.). Tests for arsenic proved positive in both the urine of patients and in the wheat flour. The author stresses the importance of acquaintance with this type of poisoning.

Vrachebnoe Delo, Kharkov

14: 209-304 (March 31) 1931

Morphologic Index and Constitution. A. O. Brodsky.—p. 215.
*Biologic and Sociological Factors in Gastric Secretion. J. E. Shapiro. —p. 219.
Determination of Maximal Systole Without Instruments. B. E. Solotarewskaja.—p. 228.
Influence of Malaria on Nervous System. G. M. Melik-Allechwerdow. —p. 230.
*Hirschsprung's Disease: Two Cases. S. A. Galperin.—p. 234.
Shock at Childbirth. I. W. Popandopulo.—p. 237.
Ambard Constant in Determination of Kidney Functioning. B. D. Kukuyewitzky.—p. 240.
Disturbance in Carbohydrate Metabolism of Blood and the Curve in Alimentary Hyperglycemia in Syphilis. L. M. Markus and A. I. Einberg.—p. 244.

Biologic and Sociological Factors in Gastric Secretion.—Shapiro reports the results of a study of 519 cases of various ulcerous conditions of the stomach. The combined tests of Boas-Ewald were used to determine free acidity. Duration of the disease, age, sex and diet were considered. Differences in acidity are not due to the diseased condition only. Women have been found to have a lower acidity than men. The gastric secretion is lower in the advanced diseased conditions since the cells do not secrete as fast or as long. That rural patients had a lower acidity than urban patients was explained by differences in diet.

Hirschsprung's Disease.—From a review of the literature Galperin is inclined to agree with the recent theories on an involvement of the sympathetic and parasympathetic nervous system connected with the colon, in Hirschsprung's disease. Lumbar sympathectomies were performed in two cases reported. One operation was highly successful; the other did not result in any improvement of the patient's condition. Microscopic examination of specimens of tissue excised, however, failed to show any nervous tissue. The author concludes that the second operation was an unsuccessful ganglionectomy.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 3525-3664 (July 4) 1931

Hypoglycemia or Diabetic Coma? L. P. Daniels.—p. 3528.
Influence of Epinephrine on Diastolic Blood Pressure in Beriberi, and Its Clinical Importance. W. C. Aalsmeer and C. S. Richter.—p. 3539.
Determination of Chlorine Content of Small Quantities of Human Milk. B. Sjollema.—p. 3547.
*Prophylaxis of Rickets. J. H. G. Carstens.—p. 3550.
Infection Due to Bacillus Suipestifer. M. Marveld.—p. 3560.
Edwin Smith Papyrus. J. G. de Lint.—p. 3563.
The Surgical Text of the Edwin Smith Papyrus. J. G. de Lint.—p. 3581.

Prophylaxis of Rickets.—Carstens brings out that in the Netherlands, owing to its severe climate, nearly all infants more than 3 months old need, during the winter, prophylactic treatment against rickets. Such prophylactic treatment must begin in November and should be continued until April. It may consist in the administration of biologically assayed cod liver oil, vitamin-containing preparations, and irradiation with the Hanau ultraviolet ray generator or the Philips sun lamp, once or twice a week. In using the Hanau lamp, one begins with an irradiation for a period of three minutes at a distance of 1 meter and increases the dose gradually to ten minutes, reducing the distance to 80 cm. The Philips sun lamp can be employed at a distance of 0.5 meter, at first for five minutes, but rapidly increasing the time to from ten to fifteen minutes. For infants that, for various reasons, are more in danger of getting rickets than are other children (hereditary predisposition, premature birth, underweight at birth, sufferers from exudative diathesis, children that have suffered from disorders of the respiratory tracts or from repeated dyspeptic conditions, or that live under bad social conditions) it may be necessary to increase these dosages, or to begin the treatment earlier or to prolong it.